

Letter Kenny Army Depot	Tobyhanna Army Depot	Hill AFB
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Tactical Missile Maintenance
Consolidation (Box 202)

Folder 7 - Tobyhanna Army Depot

Correspondence and background briefings/documentation

Folder 8 - Hill Air Force Base

Correspondence and background briefings/~~documentation~~
documentation

Folder 9- Documentation regarding Letter Kenny
Army Depot Tenant Activities



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS OGDEN AIR LOGISTICS CENTER (AFMC)
HILL AIR FORCE BASE, UTAH

June 4, 1993

Mr Scott Trench
Defense Base Closure and Realignment Commission
1700 North Moore Street
Suite 1425
Arlington, VA 22209

Dear Mr Trench

Welcome to Hill Air Force Base and the home of the Ogden Air Logistics Center.

As one of five air logistics centers, Ogden ALC is assigned worldwide logistics management and maintenance support responsibilities for many Department of Defense capabilities.

We are the Air Force leader for missile workload and provide full-service support to both strategic and tactical missile systems. You will see examples of our vast capabilities during your visit. Our responsibility extends from the management of the missile system through repair and modification, testing, storage and eventual disposal.

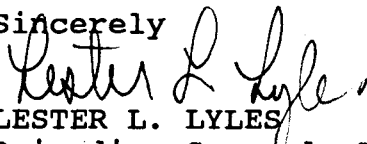
This center has many proven world class capabilities to support our missile customers. Our unique industrial facilities as well as the adjacent Utah Test and Training Range provide the best choice for all missile workloads. Ogden ALC is clearly the Defense Department's competitive leader for cost effectiveness and mission efficiency through full-service missile support.

Our parent command, Air Force Materiel Command, and this center are postured to assume even greater cross-service workloads to support all future consolidated Defense missile requirements.

We hope your visit to Ogden Air Logistics Center will provide the information you need to validate our belief that Ogden ALC is the Defense Department's most competitive supplier of choice for a full complement of missile workload.

Please don't hesitate to call us if you need clarification of any of the information presented today.

Sincerely


LESTER L. LYLES
Brigadier General, USAF
Commander

Document Separator

DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION STAFF VISIT

4 June 1993

OGDEN AIR LOGISTICS CENTER
HILL AIR FORCE BASE

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BRIEFING

Ogden Air Logistics Center

Tactical Missile Repair

A tactical missile repair knife is shown diagonally across the center of the page. The knife has a long, thin blade and a handle with a textured grip. The blade is positioned behind the word 'Repair' in the title.

4 June 1993

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Ogden Air Logistics Center

Overview

Missile Support Capabilities

Current Workloads

Potential Tactical Workloads

Summary

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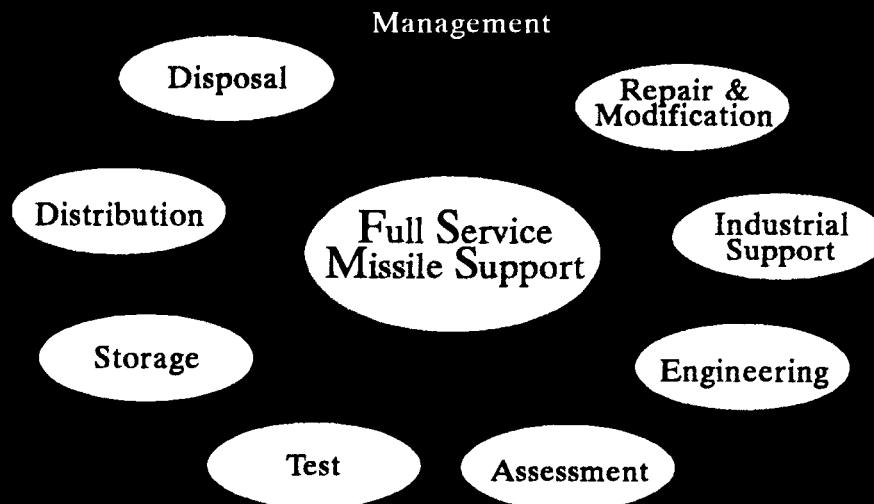
OO-ALC Missile Support Capability



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OO-ALC Missile Support Capability



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Missile Management

System Acquisition

"Cradle to Grave" System Management

Specialized Management

Silo-Based ICBM System Program
Office

Maverick System Program Director
Missile Component and Container
Managers

System, Supply, and Field Support

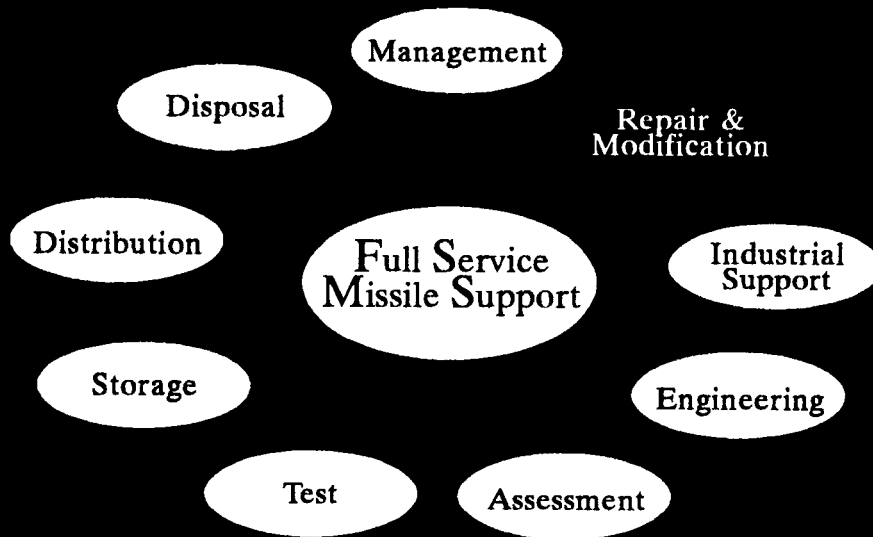
Explosives Experts
Spares Procurement

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Explosive Component Mgmt
HAARM
AIM-9

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OO-ALC Missile Support Capability



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Missile Repair/Modification

Missile Component and System-Level
Repair

Analytical Condition & Repair Inspections
Guidance and Control Systems Overhaul
All-Up Round Integration and Test

Ground Support Equipment Repair
Hardware and Software

Missile and Ground Support Equipment
Upgrades

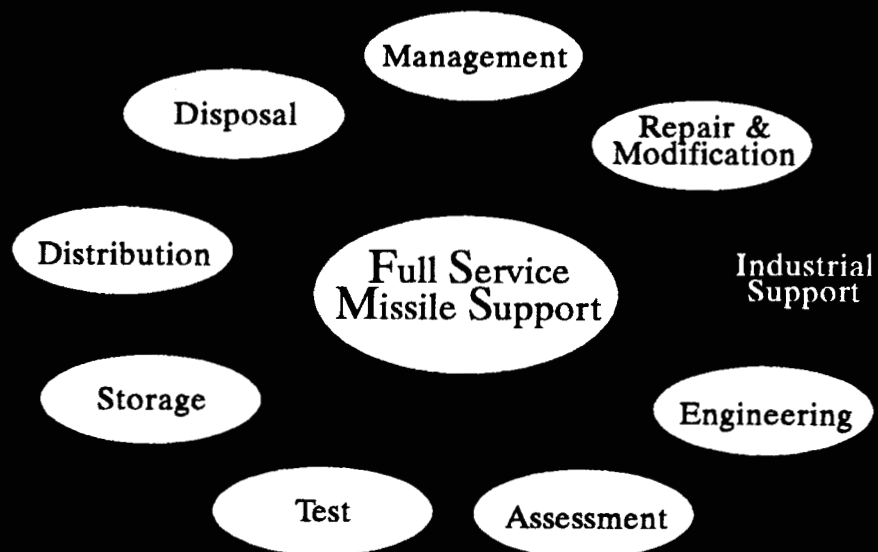
Performance Reliability and
Maintainability Enhancements

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all day MAVERICK work

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OO-ALC Missile Support Capability



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Industrial Support

Unique Design, Prototyping, and
Competitive Manufacturing Expertise

Optical and Photonic Components
Printed Circuit Boards
Electrical Cabling
Plastic and Rubber Molding
Investment Casting
Packaging Systems
Indoor Anechoic (Radar)
Test Complex

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- all prototypic work for DOD
- ~~small volume production~~ while waiting for contracts

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Industrial Support

Also Provide Typical Industrial Support Functions

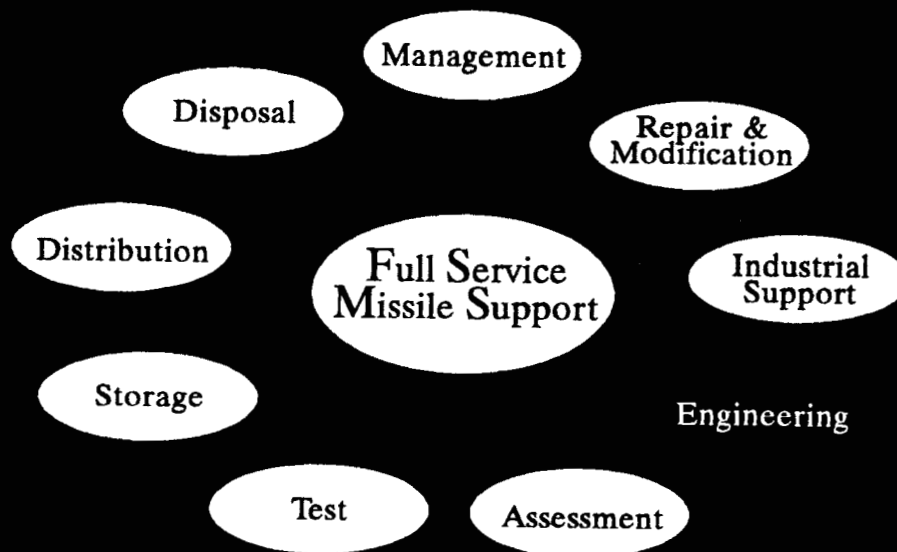
**Precision Measurement Equipment Lab
Hydraulics/Electronics Support
Machine Shop
Plant Management
Supply**

**Major Missile Contractors in Local Area
Hercules, Thiokol, Williams
International**

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OO-ALC Missile Support Capability



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Missile Engineering

Systems Engineering Support
Hardware/Software, Design,
Development, Test, and
Integration Expertise "In-House"

Independent Software Verification
and Validation

EPA Certified Chemical Analysis

Structural & Electrical Failure Analysis

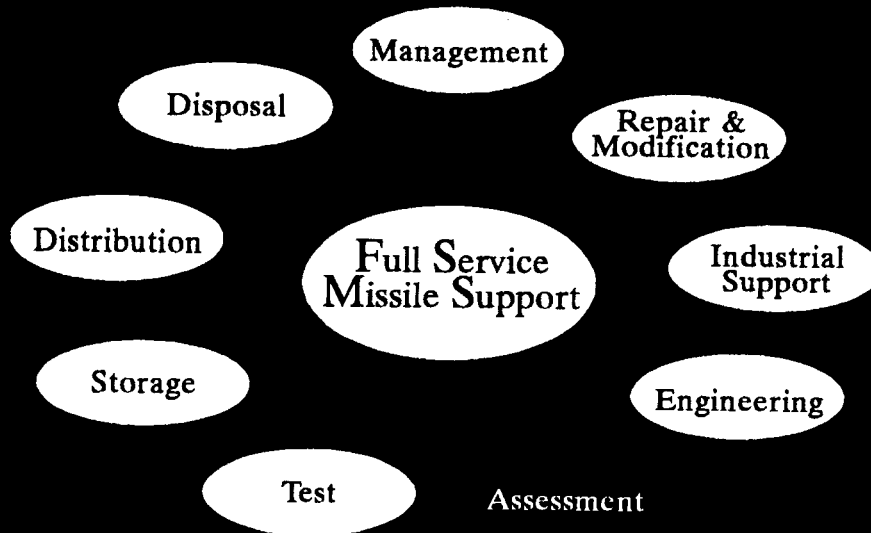
Time Studies & Process Improvement

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approx. 5 yrs to get EPA certified

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OO-ALC Missile Support Capability



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Missile Assessment

Explosives Analysis

X-Ray and Computed
Tomography (CT)
Rocket Motor and Warhead
Dissections
Chemical and Physical Analysis

Survivability/Vulnerability Analysis

Radiation
Shock and Vibration
Electromagnetic Compatibility/
Interference

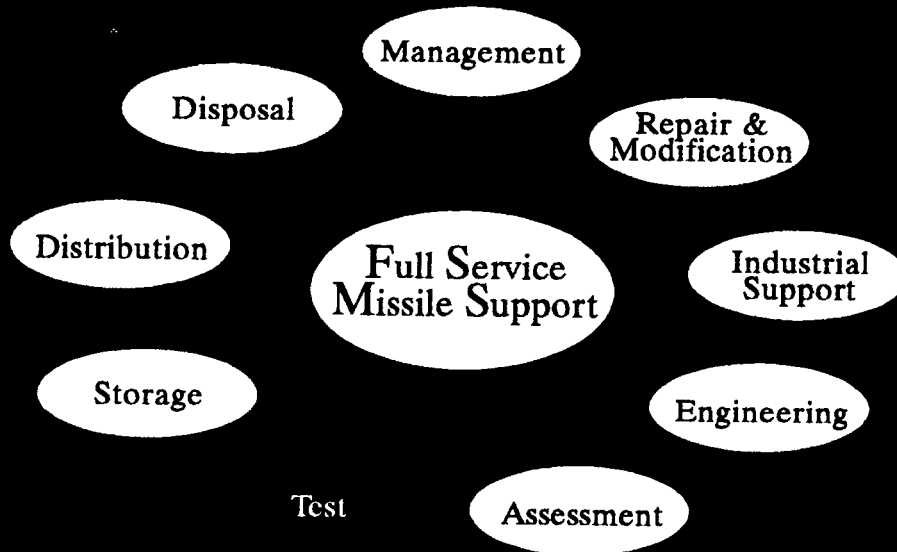
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*Computed Tomography - Take pictures of explosive engine component
to see if damage to propellants*

100,000 duty hrs per year.

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OO-ALC Missile Support Capability



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Missile Test

Aging and Surveillance of Explosive
Components

Service Life Predictions
Safety Assessments

Live and Static Firing

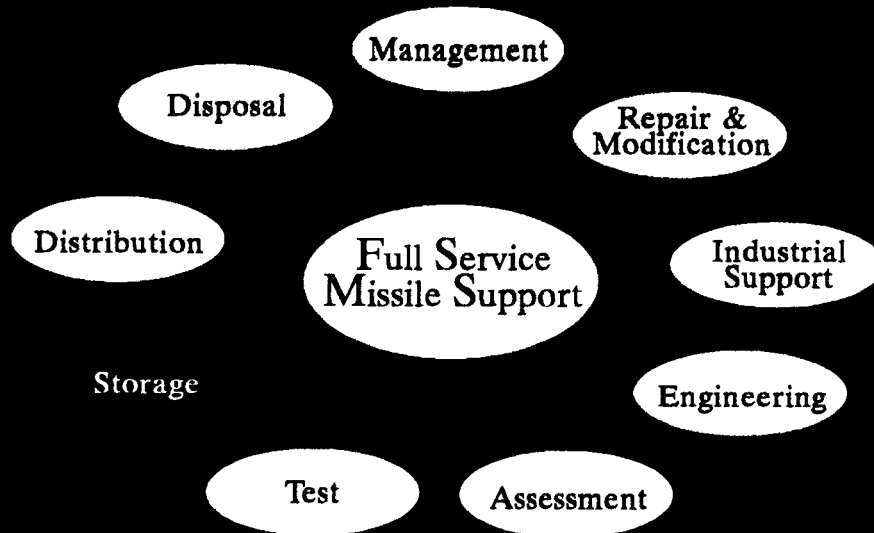
Warheads/Large Motors: UTTR
Small Motors/Components: On-Base

Close Proximity to Operational Users
388th and 419th Fighter Wings

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OO-ALC Missile Support Capability



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Missile Storage

Explosive Storage

- Missile Assembly & Maintenance Storage (>200 Facilities, 247,000 Sq Ft)
- Tooele North Storage Area (41,000 Sq Ft)
- Oasis (108,000 Sq Ft)

Non-Explosive Storage On-Site

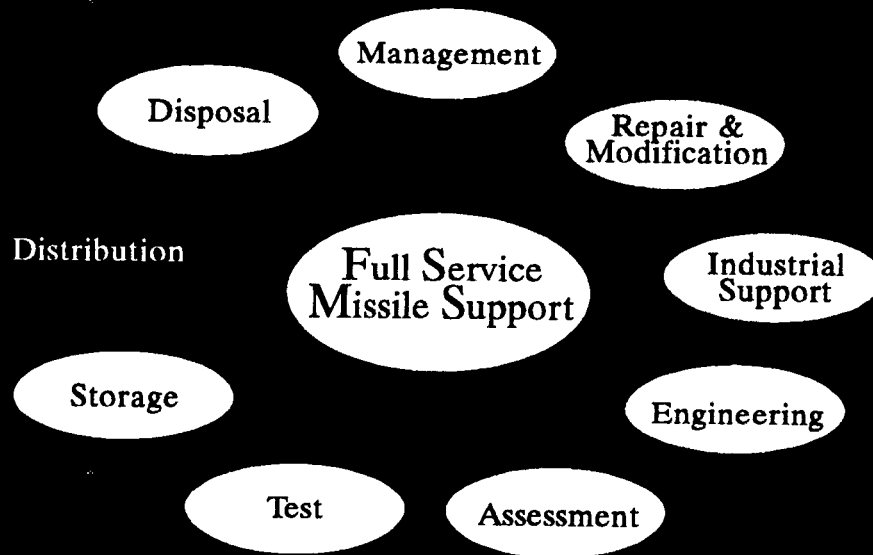
- OO-ALC Storage Areas (252,000 Sq Ft)
- Defense Logistics Agency Storage Areas (3.4M Sq Ft)

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↓ 2 million sq ft - indoor

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OO-ALC Missile Support Capability



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Missile Distribution

Ammunition Control Point for All
USAF Non-Nuclear Munitions

\$14 Billion Inventory
Processed Over 4165 Tons of Munitions
(167 Boeing 707 Equivalents) During
Two-Month Period in Support of
Desert Storm

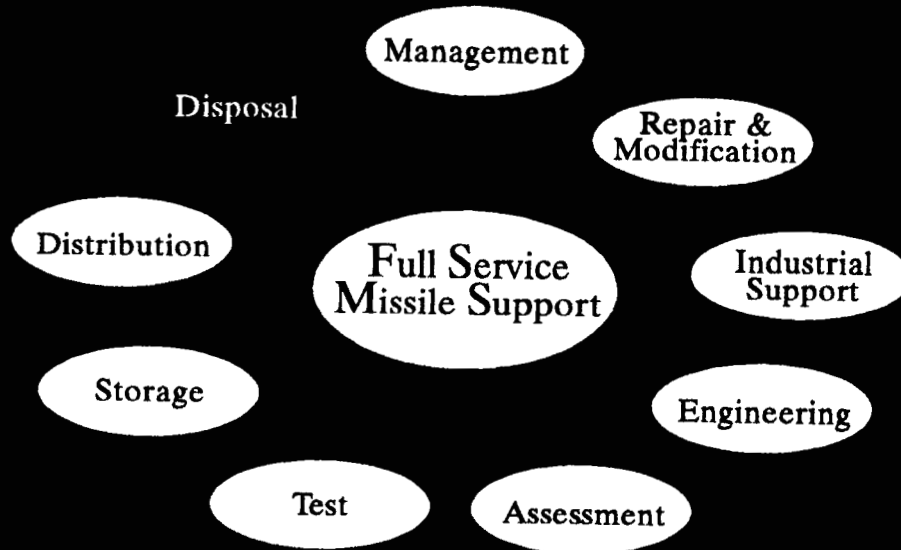
Located Near Major Transportation
Networks

Airfields, Interstates, & Rail
Service

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OO-ALC Missile Support Capability



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Missile Disposal

Explosive Ordnance Disposal (EOD)
Team

The Only USAF EOD Squadron

Uses Thermal Treatment Unit at Utah
Test and Training Range

Capable of Disposing of Large
Explosives While Maintaining EPA
Compliance
One of a Few Select Sites

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Current Workloads

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DoD Missile Workloads

ACM
ALCM
AMRAAM
ANTSQ-73
Army Tactical Missile
Chaparral
Dragon
HARM
Harpoon
Have Nap
Hawk
Hellfire
LCSS
Maverick
Minuteman
MLRS

Patriot
Peacekeeper
Phoenix
Poseidon
RSLP
Shillelagh
Sidewinder
Sparrow
SRAM
Standard
STARS
Stinger
TOW & TOW Cobra
Tomahawk
Trident
TSSAM

■ LEAD
Consolidation
OO ALC
Reported

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OO-ALC Missile Workload

System	Manage	Test	Repair	Direct Labor Hrs*
Minuteman	✓	✓	✓	763K
Peacekeeper	✓	✓	✓	73K
Maverick	✓	✓	✓	86K
Sidewinder		✓	✓	103K
SRAM		✓	✓	4K
ALCM		✓	✓	14K
ACM			✓	0.7K
Have Nap		TBD		N/A
AMRAAM		✓		N/A
HARM		✓		N/A
RSLP		✓	✓	24K
STARS		✓	✓	0.2K
Note: Direct Labor Hours Represent Repair Only			Total	1067.9K

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Have Nap - Israeli - explosive component
 RSLP - Bentley System launch pad
 STARS - Strat. Target Systems

F493

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Total DoD Missile Workload Comparisons

All Repair

OO-ALC Repair

Assets*	Direct Labor Hrs (K)	Direct Labor Hrs (K)	%
USAF	1157	1068	92
DoD	2207	1068	48

*Excludes AMRAAM, HARM, Have Nap, Tomahawk, & TSSAM

Sources: Estimates Based on Tactical Missile Maintenance Consolidation Plan for LEAD, dated 31 Jan 92, and Briefing Prepared for Mr Bertone, Principal Deputy Assistant Secretary of Defense (Production & Logistics), Analysis of Tactical Missile Maintenance, dated 08 Feb 93.

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DoD Tactical Missile Workload Comparisons

Assets*	All Repair	OO-ALC Repair	
	Direct Labor Hrs (K)	Direct Labor Hrs (K)	%
USAF	293	208	71
DoD	1020	208	20

*Excludes AMRAAM, HARM, Have Nap, Tomahawk, & TSSAM

Sources: Estimates Based on Tactical Missile Maintenance Consolidation Plan for LEAD dated 31 Jan 92, and Briefing Prepared for Mr Bertalan, Principal Deputy Assistant, Secretary of Defense (Production & Logistics), Analysis of Tactical Missile Maintenance, dated 08 Feb 93.

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Air-7 work done by Alameda ~~Person~~ Reason for lower AF percentage.

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Potential Tactical Missile Workloads

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Potential Tactical Missile Repair Workloads

Category I Workloads

Fits Well Into Existing Repair Flows
Immediately Integratable Into Flow
Facility Realignment Only--No MILCON

Category II Workloads

Adaptable to Existing Repair Flows;
Requires Transition Planning
Facility Modifications Required--No MILCON

Category III Workloads

Projected Availability Beyond FY95;
Requires Transition Planning
Facility Modifications Required--No MILCON

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Like

SIMILAR

Future

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Category I Tactical Missile Workloads

Requirements

System	Direct Labor Hours (K)				Floor Space (K-Sq Ft)		
	FY94	FY95	FY96	FY97	Req	Add	Avail
Sidewinder*	14.8	14.4	15.5	18.4	3.0	0	24
Chaparral*	23.6	23.6	-	-	3.1	0	
Hellfire**	3.7	3.7	3.7	3.7	3.6	0	38
Total	42.1	41.7	19.2	22.1	9.7	0	62

*In Addition to 103K Hrs of Current Sidewinder Repair

**In Addition to 83K Hrs of Current Maverick Repair

Sources: Floor Space Requirements from Building 370 First Floor Proposed Floor Plan, LEAD, 08 May 92. Direct Labor Requirements from Briefing Prepared for Mr Berteau, Principal Deputy Assistant, Secretary of Defense (Production & Logistics), Analysis of Tactical Missile Maintenance, dated 08 Feb 93.

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what unique equip does Alameda have? System unique?

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Advantages of Consolidating Category I Workload at OO-ALC

Support Infrastructure in Place

Minimal Facility Realignment--No MILCON

Common Support Equipment Already in Place

Highly Skilled Work Force Available

Can Implement Immediately

**Immediate Consolidation of CAT I
Workload at OO-ALC Makes Sense**

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Category II Tactical Missile Workloads

Requirements

System	Direct Labor Hours (K)			
	FY94	FY95	FY96	FY97
ANTSQ-73	56.9	56.9	-	-
Dragon	22.4	22.4	22.4	22.4
LCSS	18.8	18.8	-	-
MLRS	49.2	49.2	49.2	49.2
Phoenix	9.9	23.9	20.4	20.4
Shillelagh	5.2	5.2	-	-
Sparrow	89.0	71.9	73.6	70.6
Stinger	30.8	11.8	14.2	14.2
TOW Missiles	112.8	112.8	112.8	112.8
Total	395.0	372.9	292.6	289.6

Floor
Space
(K-Sq Ft)

Req
65
Avail
65

Note: Same Sources as Category I Chart and Tactical Missile Maintenance Consolidation Plan for LEAD, 31 Jan 92.

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Advantages of Consolidating Category II Workload at OO-ALC

Support Infrastructure in Place

Limited Facility Modification--No MILCON

Common Technology and Skills in Place

Training Programs Available Locally

Economies of Scale

**Phased Consolidation of CAT II Workload
at OO-ALC Makes Sense (94-98)**

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Category III Tactical Missile Workloads

Requirements

System	Direct Labor Hours (K)			
	FY94	FY95	FY96	FY97
AMRAAM	-	-	-	-
ATACM	21.6	21.6	21.6	21.6
HARM	-	-	38.9	47.2
Harpoon	16.1	16.1	16.1	16.1
Have Nap	-	-	-	-
Hawk	73.2	63.7	60.0	58.5
Patriot	200.6	167.8	151.4	135.8
Standard	63	66	67	81
Tomahawk	-	-	-	-
TSSAM	-	-	-	-

Floor
Space
(K-Sq Ft)

Req
100
Avail
100

Note: Same Sources as Category I Chart and Tactical Missile Maintenance Consolidation Plan for LEAD, 31 Jan 92.

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Total - 500,000 - 600,000 new DLHs

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Advantages of Consolidating Category III Workload at OO-ALC

Support Infrastructure in Place

Limited Facility Modification--No MILCON

Increased Economies of Scale

**Common Technologies and Skills with
Other Workloads**

**Leverage Category II Production
Processes**

**Phased Consolidation of CAT III Workload
at OO-ALC Makes Sense (FY96-98)**

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Summary

Consolidation of Tactical Missile Workload
at Ogden ALC Makes Sense

Ogden ALC Offers the Most Extensive Missile
Experience in DoD

Over 30 Years Experience

Ogden ALC Provides Full Service Missile
Support

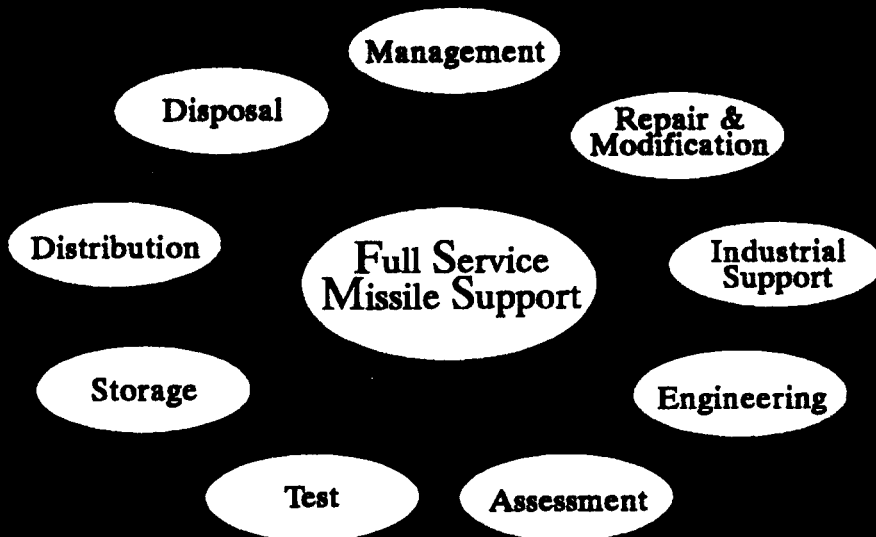
Support Infrastructure in Place
Facilities Available--No MILCON
Skills and Technology in Place

We are Ready Now!

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OO-ALC Missile Support Capability



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Document Separator

UNIQUE MISSILE FACILITIES

Building 1941 Chemical Analysis Unit

Mission

- Complete chemical analysis on explosives and munitions

Strength

- Nine personnel assigned, including chemists, physicists, physical science technicians, and math/statisticians

Significant Facts

- Available equipment and trained personnel to perform chemical, thermal, moisture, density, burn rate, degradation, and chemical composition testing and analysis on explosive and munitions items

Discussion Points

- 3,297 square-foot facility
- Number of units output per year:
 - Over 10,000 specimens on 15 or more weapon systems and components

Building 1943

Physical Analysis Unit

Mission

- Physical properties/hardness, stress/strain, age-surveyance, and investigative failure testing and analysis on explosives and munitions

Strength

- Nine personnel assigned, including chemists, physicists, physical science technicians, math/statisticians

Significant Facts

- Pressure, temperature, and speed simulations duplicating conditions of air-launch, silo-launch, and in-flight conditions relating to explosives and munitions

Discussion Points

- 3,297 square-foot facility
- Number of units output yearly:
 - Over 8,000 specimens on 15 or more weapon systems and components



Missile technician cutting propellant with guillotine. The cutting procedure is only part of the full-service missile support available through Ogden ALC.

Building 1946 Propellant Machining

Mission

- Remote controlled explosive machining of explosive propellants and ordnance

Strength

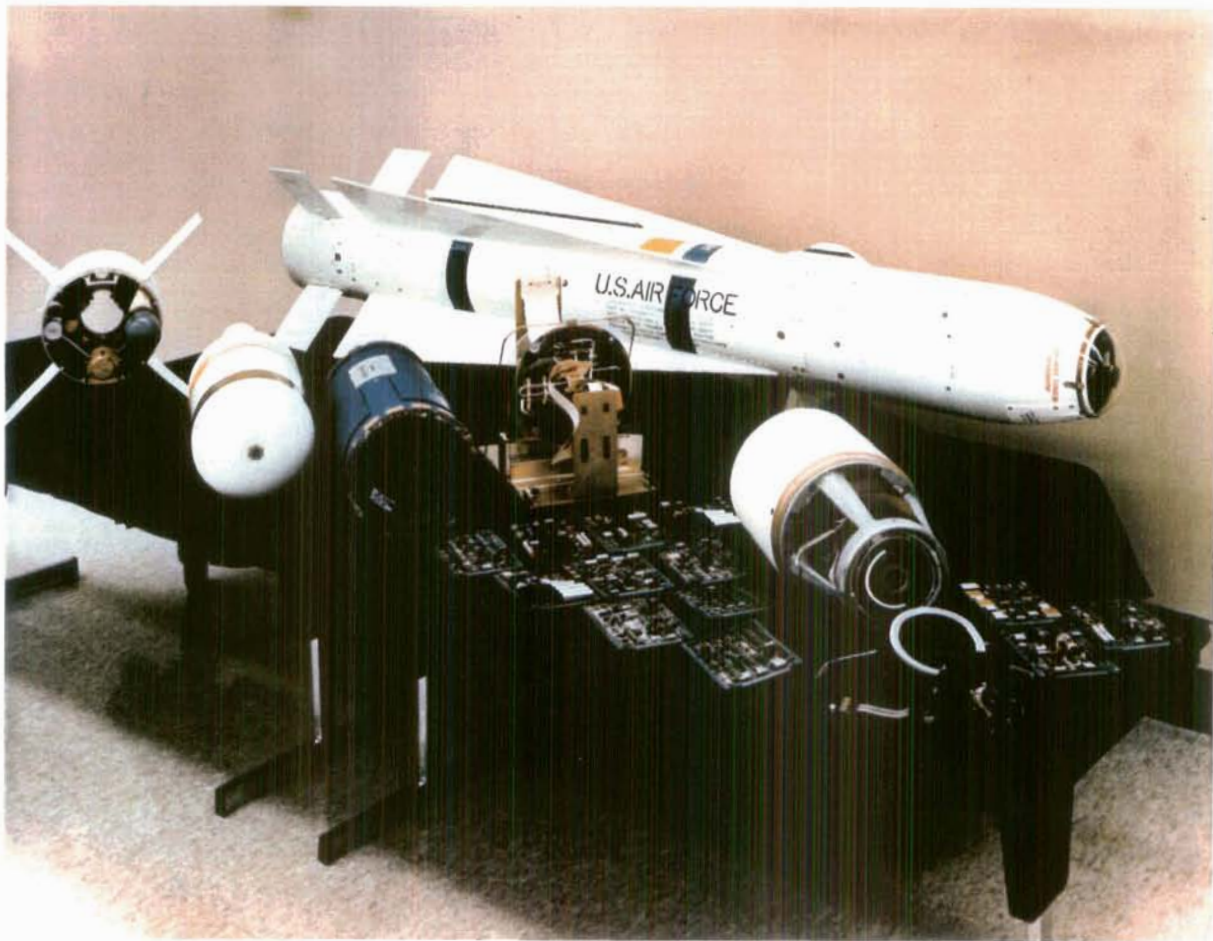
- 11 personnel assigned, including Explosive Toolmakers and Explosive Machinists

Significant Facts

- Robotics capability
- Remote machining
- Inertion/modification of explosives and ordnance

Discussion Points

- 2,436 square-foot facility
- Number of units output yearly:
 - Over 20,000 operations on 15 or more weapon systems and components



AGM-65

An array of AGM-65 Maverick missile critical components and all-up round. Ogden ALC performs variety of component and system-level repair and upgrades.

Building 2026

All Up Round Maverick Repair Facility

Mission

- All up round repair of the AGM-65 Maverick Missile for the Air Force, Navy, and Foreign Military Sales

Strength

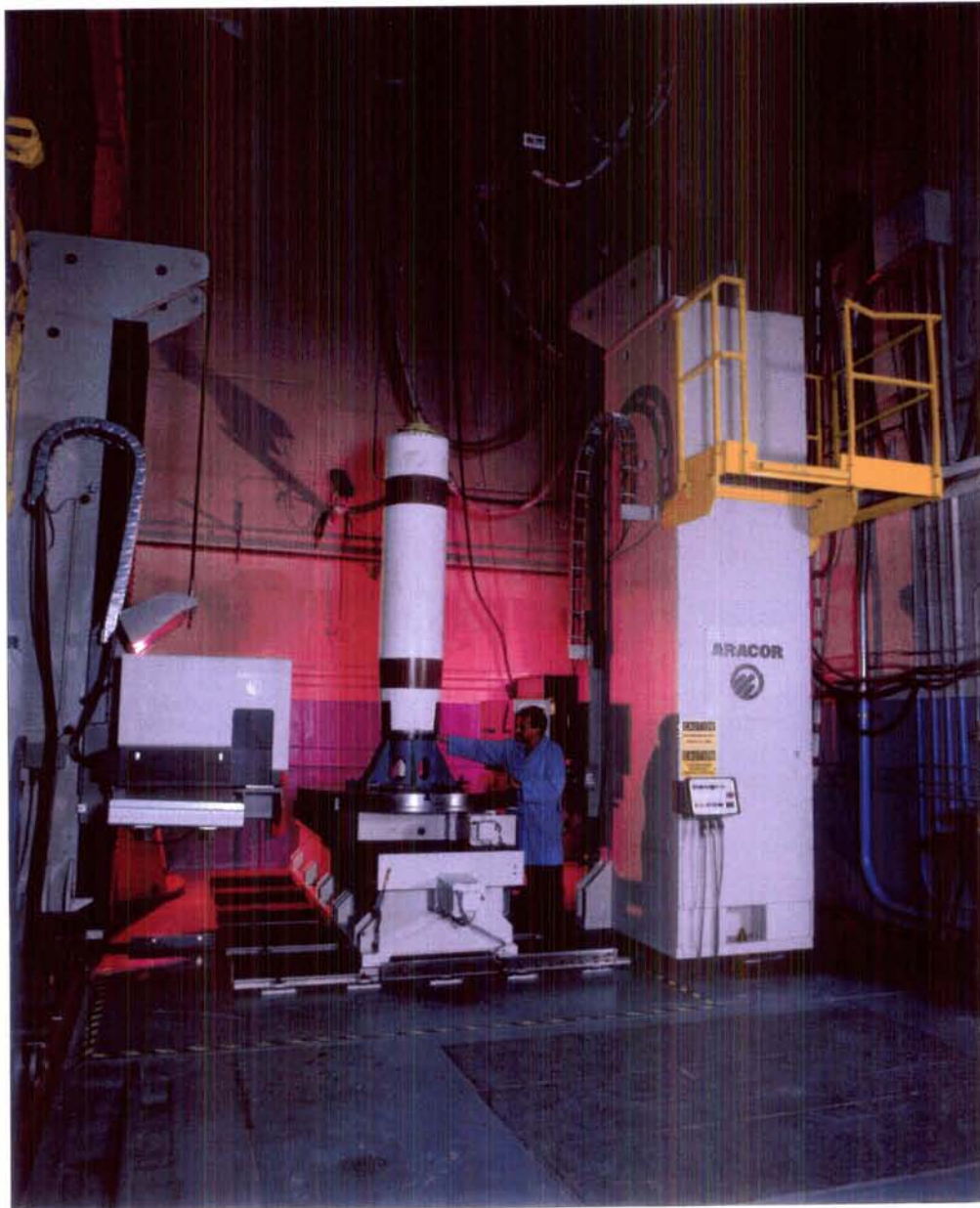
- 14 workers assigned

Significant Facts

- Laser test capability
- Secure area including cyber door locks and motion detectors

Discussion Points

- 22,750 square-foot facility
- Number of units output yearly:
 - 150 each all up round Mavericks
 - 425 each all up round Mavericks for Desert Storm



Computed Tomography

Ogden ALC's computed tomography capability saves valuable program manpower and money for non-destructive inspections.

Building 2113

Missile X-Ray and Computed Tomography

Mission

- Aging and surveillance of solid rocket motors and components

Strength

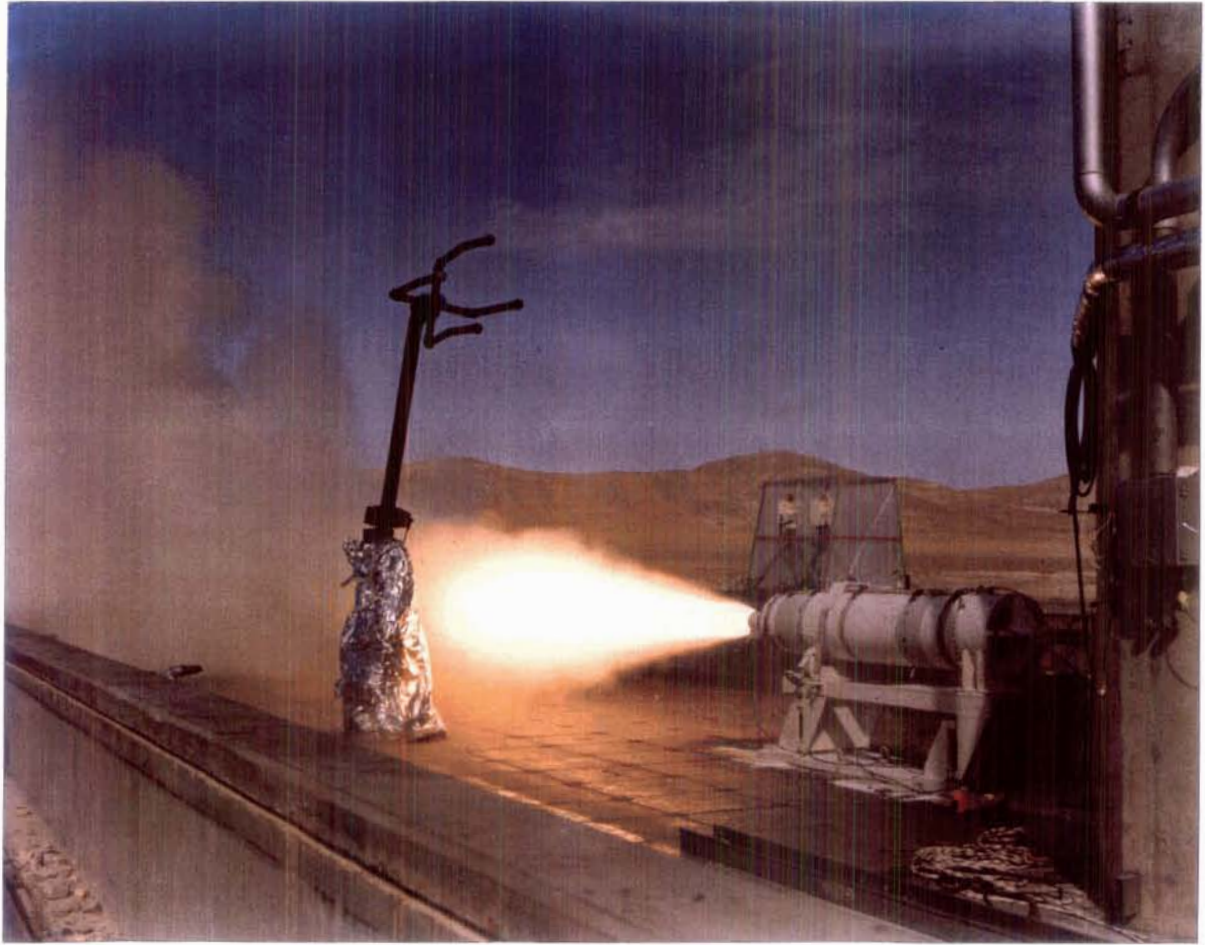
- 11 workers assigned

Significant Facts

- High radiation computed tomography
- Munitions inspection capability
- Film and motor historical library

Discussion Points

- 23,000 square-foot facility
 - 6,000 square feet for computed tomography
- Number of units output yearly:
 - 72 Minuteman Stage IIIG solid rocket boosters
 - 24 SRAM short range attack missiles



Static Test Firing of SRAM Missile at Utah Test and Training Range (UTTR)

Building 1424

ALCM/SRAM/ACM Repair Facility

Mission

- All up round repair of the Air Launch Cruise Missile (ALCM), Short Range Attack Missile (SRAM), and the Advanced Cruise Missile (ACM)

Strength

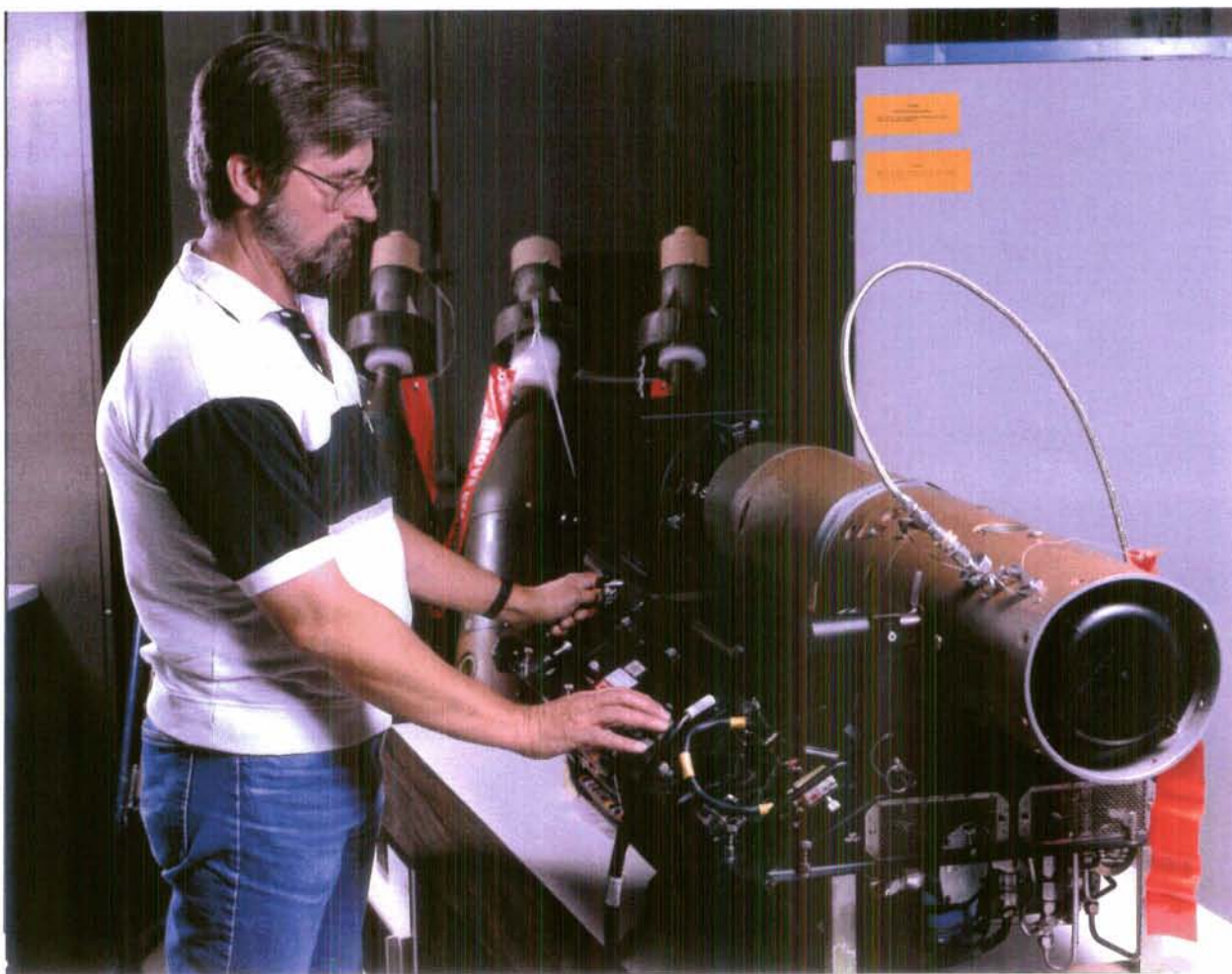
- Eight workers assigned

Significant Facts

- Facility has an ozone-safe paint booth
- Fuel/defuel ALCM and ACM engines

Discussion Points

- 34,060 square-foot facility
- Number of units output yearly:
 - 24 each SRAM's, 30 ALCM's, and 6 ACM's



Missile Guidance Unit Repair Facility

A highly trained technician takes readings to ensure repair and accuracy on the missile.

Building 5

Missile Guidance Unit Repair Facility

Mission

- Repair/modify AGM-65A, B, D, E, F, and G models, GBU-15/AGM-130, Paveway guided bombs, associated components and associated field testers, SRAM and ACM components

Strength

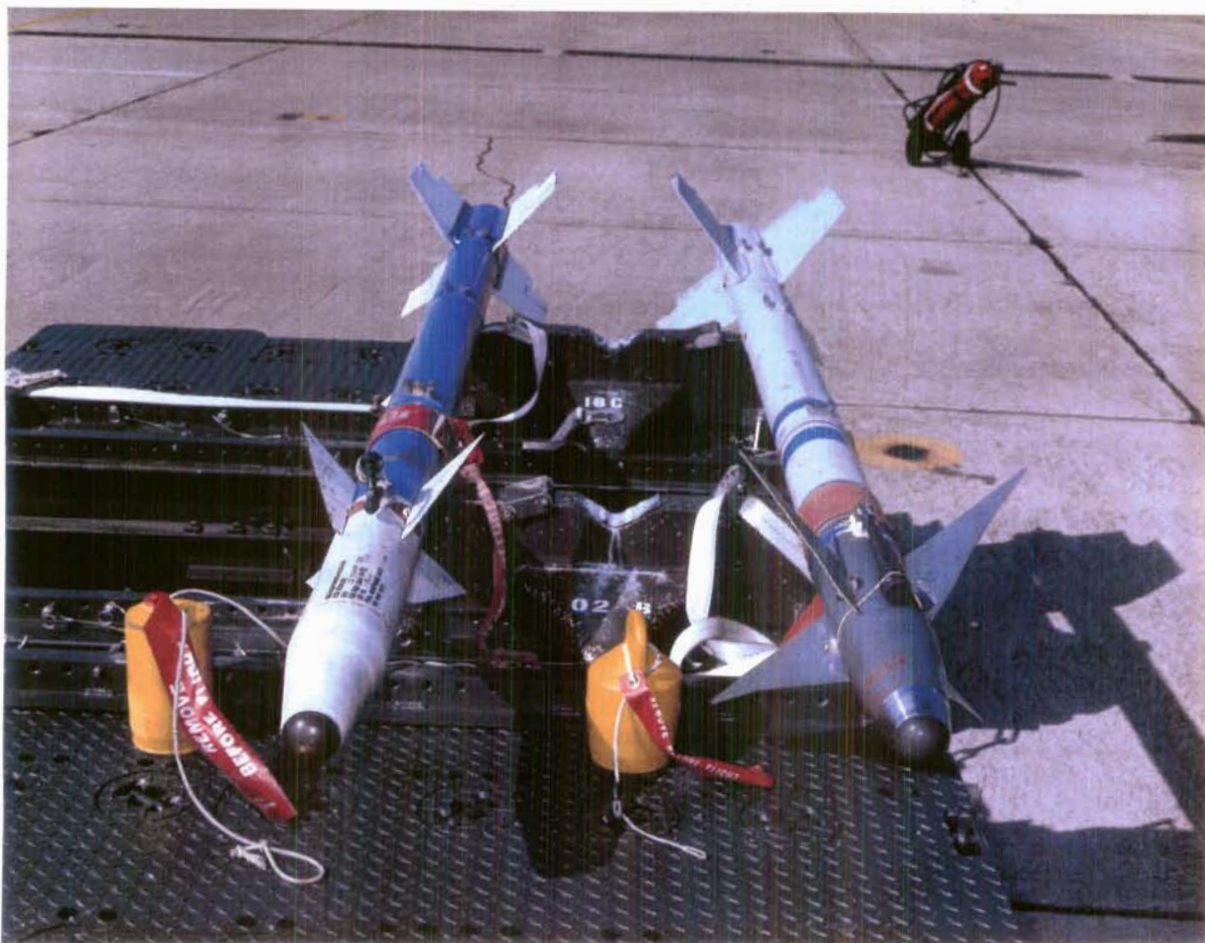
- 38 workers assigned

Significant Facts

- Facility has a 10.000 class laser clean room

Discussion Points

- 21,600 square-foot facility
- Number of units output yearly:
 - 1,460 assorted end items



AIM-9

U.S. Air Force and U.S. Navy as well as many foreign military governments rely on the highly effective AIM-9 missile.

Building 100

AIM-9 Sidewinder Repair Facility

Mission

- AIM-9 guidance control section repair and modification; associated circuit card repair. Supports Air Force, Navy, and Foreign Military Sales customers

Strength

- 36 workers assigned

Significant Facts

- Facility has a 1.000 class clean room

Discussion Points

- 24,900 square-foot facility
- Number of units output yearly:
 - 4,364



Minuteman

A Minuteman Missile is loaded into the silo. Ogden ALC workers use ultra-modern repair facilities to keep the transportation equipment in a ready state.

BUILDING 847

GROUND MECHANICAL REPAIR SECTION

STRENGTH

AUTHORIZED			ASSIGNED		
MIL	CIV	TOT	MIL	CIV	TOT
	113	113		101	101

MISSION

- Our primary mission is to overhaul, repair, service and maintain the transportation and handling equipment used in transporting, installing, and removing Minuteman and Peacekeeper missiles. We also overhaul, repair, and service a variety of equipment required to maintain and service ICBM missiles, sites, control centers, and supporting equipment. Because of the uniqueness of this section, we are able to maintain old and aging systems. This is accomplished by manufacturing parts that are no longer procurable

SIGNIFICANT FACTS

- Modern repair facility, over 146,000 square feet in area
 - Sandblast booth: 14 feet high, 13 feet wide, 100 feet long
 - Paint booth: 14 feet high, 13 feet wide, 100 feet long
 - Four bays 380 feet long that are drive-through bays providing ease of service on extended vehicles of more than 100 feet in length
 - Ventilation system for indoor operation of engines
 - Hazardous material zoning that meets state and federal specifications
 - Fully equipped facility with sheet metal, welding, machining and component repair shops
 - Proofload facility with 120,000 pound capacity

DISCUSSION POINTS

- Mechanical
 - Air/Hydraulic suspension systems for loads up to 250,000 lbs
 - Bridge cranes
 - Environmental systems (vehicle or special purpose)
 - Multi-axled systems including multi-axle steering
- Sheet Metal Shop (structure - mainframe)
- Welding Shop (Arc - Heli Arc - Acetylene - Plasma Cutting)
- Machine Shop (Small quantity and one-of-a-kind support)

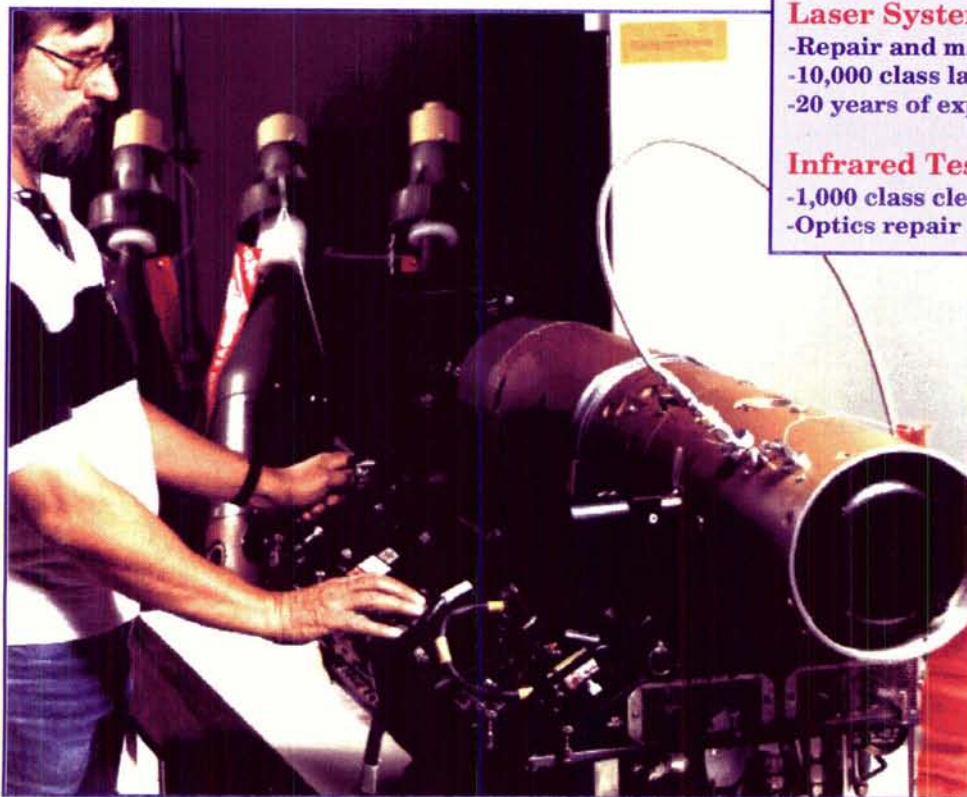
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MISSILE SUPPORT CAPABILITIES

ARMAMENT PRODUCTION TEAM

Ogden ALC's Armament Production Team has the equipment and expertise, with over 20 years of experience in repairing laser systems. Our innovative team tests, repairs and modifies field test sets. Using reverse engineering, we are able to modify field test sets to provide broader testing capabilities and quality upgrades.

GBU-15 checkout



Laser Systems Overhaul:

- Repair and maintenance
- 10,000 class laser clean room
- 20 years of experience

Infrared Test and Repair:

- 1,000 class clean room
- Optics repair and diagnostics

Explosive Tests and Repairs:

- Air-to-ground missile systems
- Fuel/defuel
- Imaging radar
- Tomography x-ray, propellant testing, chemical laboratories, fuel analysis and pneudraulic/hydraulic

Field Test Sets:

- Test and repair facility
- Kit development
- Kit installation
- Modifications

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.... Today*

ARMAMENT PRODUCTION TEAM

CAPABILITIES

The Armament Production Team provides a wide range of quality services. We will meet your requirements for ultra-clean environments and our facility is secured for classified workloads. Our test equipment is versatile and adaptable to most repair needs.

Our complete test and repair facility has the capability for static and dynamic balance and spring torque and friction testing. Our technicians are proficient in fault isolation and repair/overhaul of systems ranging from very complex to less complex circuit card repairs.

FACILITY SIZE:

The Ogden Explosive Test and Repair Team has the only facility for complete repair of any and all air-to-ground missiles for Department of Defense and Foreign Military Sales. There are 55,000 square feet of 1.1 Class A-C Explosive Rated Maintenance Facilities dedicated to this repair effort.

INTEGRATING TECHNOLOGIES IN:

- Laser Detecting Automatic Test Equipment*
- Reverse Engineering*

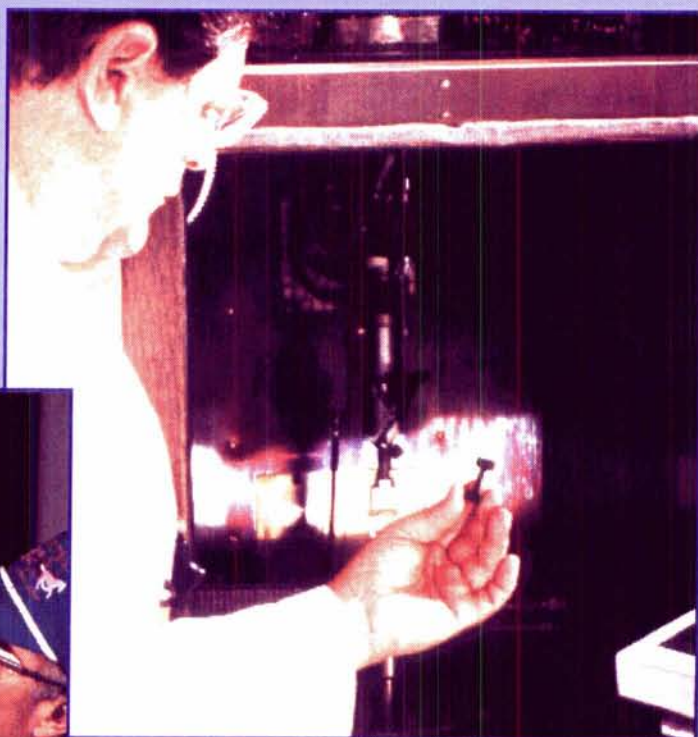
For additional information, please call or write Ogden Air Logistics Center
Commodities Directorate Business Office
Hill AFB, UT 84056-5990
DSN: 458-7351 or Commercial: (801) 777-7351

SOLID PROPELLANT DISSECTION AND TESTING

Ogden's professional personnel, using our solid propellant dissection and testing facility, can dissect, machine, analyze, and compare any of your solid rocket motors. Our highly trained technicians will ensure customer satisfaction through top quality work.

Dissecting and Machining Capabilities:

- Electro chemical
- Abrasive blasting
- Water-jet cutting
- Milling
- Drilling



Propellant being pulled apart by a tensile tester



Rocket motor ready for dissection

Physical and Chemical Testing Capabilities:

- Stress/strain
- Case bonding
- Physical hardness
- Moisture analysis
- Density
- Degradation
- Burn rate
- Thermal analysis

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.... Today*

SOLID PROPELLANT DISSECTION AND TESTING

CAPABILITIES:

Our propellant machine shop will use a variety of equipment to prepare your solid propellant specimens for chemical and physical properties testing. In addition to test specimen preparation, the machine shop has the capability to disassemble, rework or modify explosives and hazardous items using remote programmable robotics.

Our dissection unit uses an electro-chemical milling process for dissection of propellant motors less than two feet in diameter. Grit blast and water-jet systems are used in the dissection of your larger motors.

FACILITY SIZE:

The testing laboratory has a physical and chemical testing area sufficient to provide test results for virtually any tests your agency may require. Our facility can accommodate the dissection of both steel and composite cases up to ten feet in diameter.

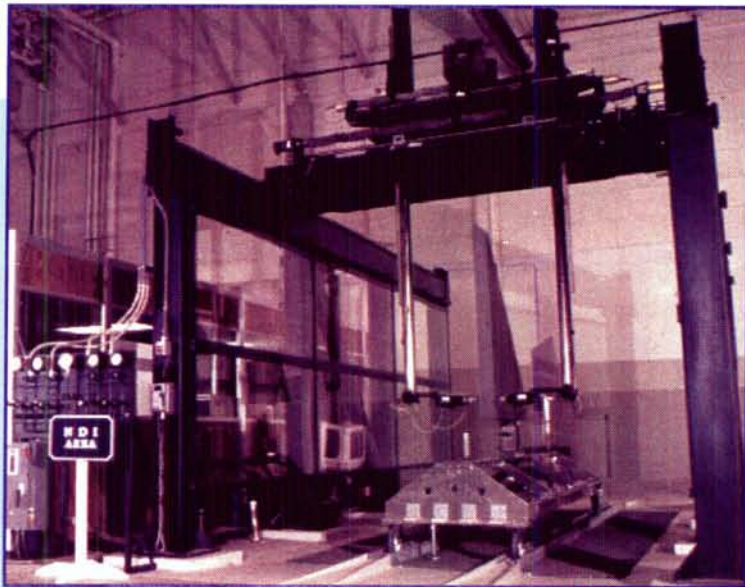
INTEGRATING TECHNOLOGIES IN:

- Electro-chemical milling*
- Grit blast*
- Water-jet cutting*

For additional information, please call or write Ogden Air Logistics Center
ICBM Directorate
Hill AFB, UT 84056-5990
DSN: 458-1928 or Commercial: (801) 777-1928

NONDESTRUCTIVE X-RAY AND COMPUTED TOMOGRAPHY INSPECTION TESTING

Ogden ALC is the leader in nondestructive inspections for explosive and hazardous items, we can do your testing using high and low energy x-ray and computed tomography.



Ultrasonic scanning in process

Our inspection testing units can ensure that weapon systems and equipment function reliably which will save you valuable man-hours and capital asset dollars.

AUSS Automated Scanning System:

- 3-D view with high quality resolution
- Inspection of alloy, components and composites
- Structural integrity checking
- 9 AXIS computer control
- Computer capabilities consisting of hard drive, optical disc, and magnetic tape

Computed Tomography:

- Variable to 7, 9, 11 MEV
- Slices from 1mm to 25mm
- Full-length digital preview scan
- Maximum inspection envelope is 57" diameter/100" long
- 8x10 color photography
- Specialists in munitions testing



Technician preparing for CT testing

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NONDESTRUCTIVE TESTING

A WORD FROM OUR CUSTOMERS:

"...your 9-MV ICT 1500 is the newest and finest CAT system anywhere in the world. It is also an extremely complex instrument, requiring specialized understanding and rigorous training on the part of an operator to fully utilize its unique capabilities."

Manager
NDE Industries

NONDESTRUCTIVE INSPECTION:

...is the ability to inspect weapon systems and parts to ensure that they perform when needed. Our technicians are certified to provide finite inspections of all weapons, missile motors and parts, landing gear, wheels, propellant, castings, reverse-engineering projects and space age materials, including the space shuttle boosters.

NEW COMPUTED TOMOGRAPHY FACILITY-Sep 94

To meet customer requirements, our new facility will provide an enlarged capability of 16 million electron volts (MEV) radiation source. This facility handles all stages of Minuteman and Peacekeeper missile systems.

INTEGRATING TECHNOLOGIES IN:

- Computed Tomography System consisting of an Aracor ICT 1500 model*
- Radiography capability utilizing two Varian Linatron 6000s*
- Low energy radiographics for medium to small items*
- Seifert 420 x-ray machine*
- Sperry 300 x-ray machine*
- Automated ultrasonic scanning system*
- Eddy current testing*
- Flourescent penetrant and magnetic particle inspection*

For additional information, please call or write Ogden Air Logistics Center
Technology and Industrial Support Directorate
Hill AFB, UT 84056-5999
DSN: 458-2719 or Commercial: (801) 777-2719

HYDRAULIC, TRAINING DEVICES AND ARMAMENT REPAIR

Technicians from our modern hydraulics shops can repair, test, and inspect your components in accordance with current aerospace standards. Our certified trainer unit technicians deploy world-wide to provide expert service for a variety of complex simulator systems, while the armament shop's state-of-the-art equipment is used to maintain specialized items in safe operating conditions.

Armament Repair Work Center



Types of Hydraulic Systems We Can Service:

- Electro hydraulic
- Missile flight controls
- Hydraulic actuators
- Missile shock isolators



Hydraulic Repair Work Station

Armament System Repair:

- Safe and reliable maintenance on ejection seats
- Overhaul of ordnance and fuel pylons
- Refurbish external tanks
- Service 20mm and 30mm guns and gun drive systems

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HYDRAULIC, TRAINING DEVICES AND ARMAMENT REPAIR

HYDRAULIC REPAIR:

The Hydraulic Repair Shops are fully self contained with inspection, repair and test equipment and tooling that meet all current aerospace hydraulic standards.

Hydraulic components overhauled include anti-skid control valves, brake valves and control manifolds, canopy and flight control actuators and valves, steering collars and control valves cross-wind control cylinders and landing gear retract gear boxes and actuators.

In addition to the general hydraulic systems, the specialized F-16 emergency power unit is overhauled in a unique repair facility that is sole source to the Department of Defense at the present time.

TRAINER REPAIR

The Physiological Trainer Repair Unit is a specialized team of certified technicians that deploy to locations in the continental United States and overseas locations, including foreign military, to accomplish repairs, prototyping, installations, removals, modifications, and overhaul of all types of physiological and environmental trainer systems.

ARMAMENT REPAIR:

The Armament Shop is a new facility, self contained and dedicated to the specialized repair of armament-related items. The secured sections of the shop provide safe maintenance on ordnance items such as F-16 ejection seats and 20mm and 30mm gun systems. The External Fuel Tank Repair Section has the capability to repair and test tanks with a capacity of 800 gallons.

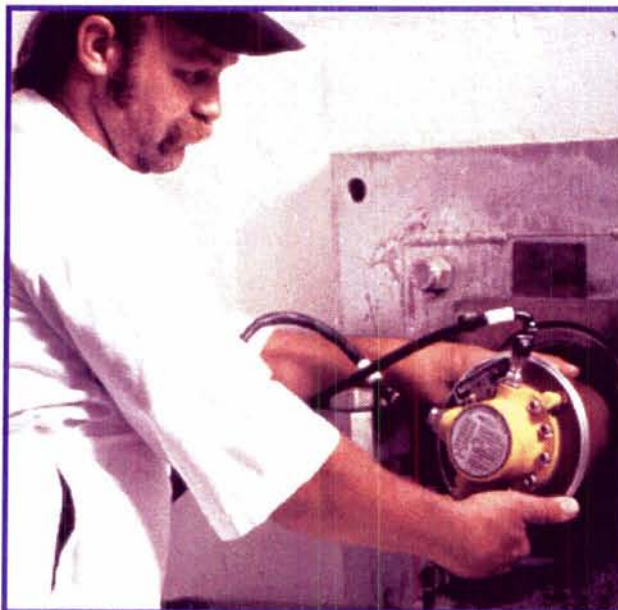
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PYROTECHNICS, EXPLOSIVES AND SQUIBS

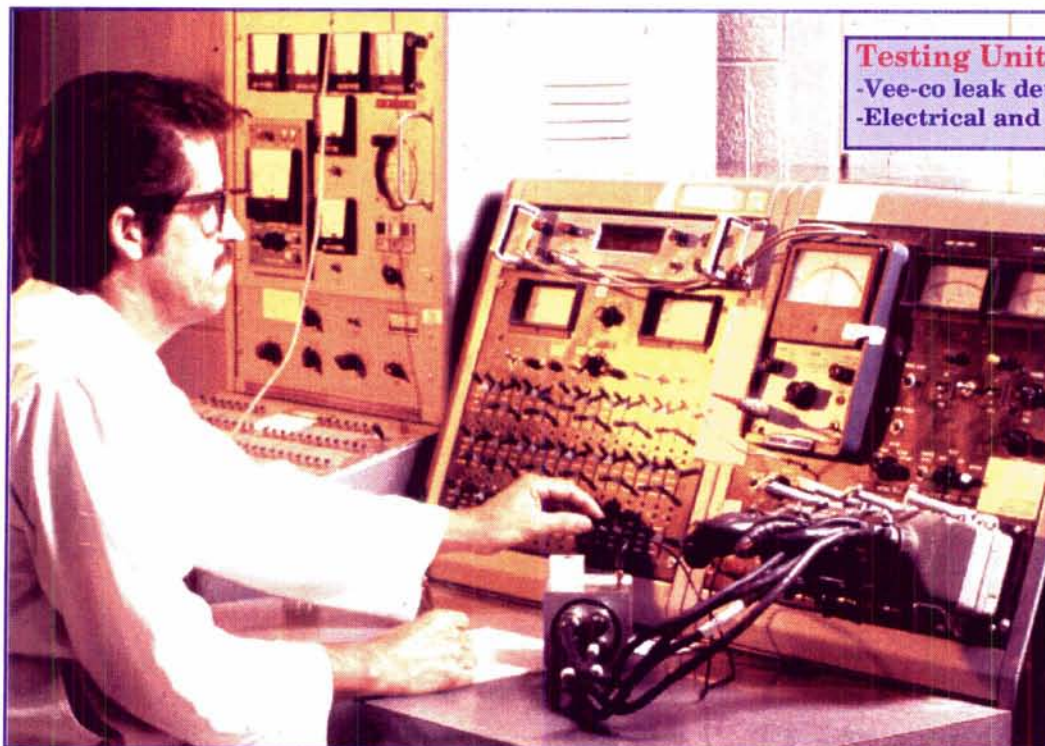
With over 25 years of experience in handling explosives, our highly skilled technicians can satisfy your requirements for safely maintaining and testing propellant and cartridge-activated devices.

Such items as:

- Cartridge and squib devices
- Rotary actuators
- Detonators
- Flare racks
- Explosive bolts
- Arm/disarm switches
- Ignitors
- Safety control switches



Explosive device test chamber



Testing Unit:

- Vee-co leak detection
- Electrical and mechanical

Final check-out of squib assembly

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PYROTECHNICS, EXPLOSIVES AND SQUIBS

CAPABILITIES:

Ogden ALC's extensive knowledge and experience in working with propellants, cartridges, and related devices will satisfy your pyrotechnic requirements. We developed a bomb storage system for maximum use of space and elimination of potential unplanned explosion, that could propagate others in the immediate vicinity.

Our test unit is capable of testing all of your cartridge and propellant-actuated devices. Advanced digital equipment, capable of recording 32 samples per second, is available to support test criteria, conventional digital and analog equipment.

FACILITIES:

Our 9,200 sq. ft. pyrotechnics facility, located within a fenced, high security area, is designed for repair, assembly and testing of explosives. Included are clean rooms and functional test chambers designed for personnel safety, effectiveness and efficiency.

On-site storage is available to eliminate most of your stockage and transportation problems normally associated with off-site storage locations.

INTEGRATING TECHNOLOGIES IN:

- Advanced digital testing*
- Pyrotechnics*

For additional information, please call or write Ogden Air Logistics Center
ICBM Directorate
Hill AFB, UT 84056-5990
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CIRCUIT CARD REPAIR

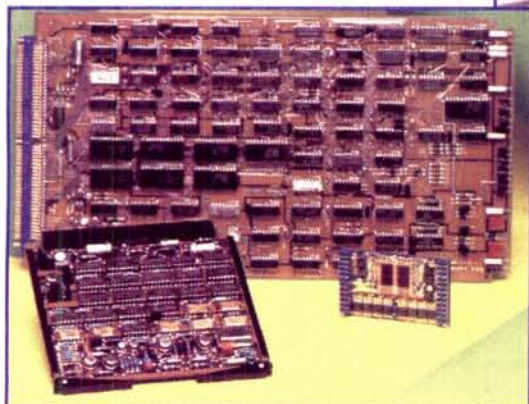
Ogden ALC has extensive soldering capabilities and has expertise in the conformal coating process used in circuit board repair. This assures a low-risk, cost-effective, highly competent methodology for accomplishment of all requirements.

Focus on quality:

- Microscopic inspection prior to and following repair
- Trained/certified technicians in surface mount technology
- Multilayer soldering
- Clean room environment



Microscopic inspection of circuit cards



Display of circuit cards repaired

Features:

- Ceramic surface technologies
- Latest technology in surface mount soldering
- Conformal coating removal and application

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CIRCUIT CARD REPAIR

CAPABILITIES:

Ogden ALC ensures our customers receive quality products that are not degraded by work place environmental conditions. Repair and test equipment being used is ergonomically geared toward personnel safety and elimination of hazardous waste materials. To ensure a clean mounting surface, stripping procedures use ground walnut shell blasters to remove the epoxy resin coating from circuit card components. These stations are equipped with an Anti-fume Monitoring System for personnel safety and a Heat Monitoring System to ensure that heat-sensitive components are not damaged. We have workstations that are specifically designed for surface mount electronic components which cannot be worked at conventional stations. Our repair technicians are certified in multilayered soldering to ensure the best product for our customers.

FACILITY SIZE:

Encompasses 96,000 square feet of environmentally controlled area. Within this area are 20,000 square feet of raised floor area for Automatic Test Equipment and 10,000 square feet of 100,000 class clean room.

A WORD FROM OUR CUSTOMERS:

"Please accept our sincere appreciation for the outstanding work provided to the 162TFG for completing the depot CADC modification...at this unit...During this period, a total of 60 CADC LRUs were modified under less-than-ideal conditions...Your commitment and integrity allowed us to conclude the TCTO under the contracted time. Your technicians have a commitment to maintenance excellence, a commitment that we at the 162nd share and pride ourselves on."

AIS NCOIC

Headquarters, 162nd Tactical Fighter Group

INTEGRATING TECHNOLOGIES IN:

- Conformal coating removal and application*
- Ceramic substrate soldering techniques*
- Surface mount processes*

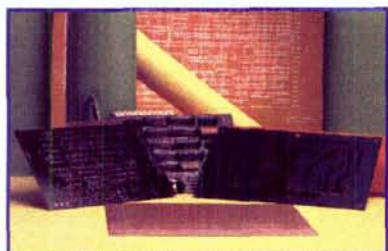
For additional information, please call or write Ogden Air Logistics Center
Aircraft Directorate Business Office

Hill AFB, UT 84056-5990

DSN: 458-8080 or Commercial: (801) 777-8080

TECHNICAL SERVICES FOR AVIONICS AND ELECTRONICS

CIRCUIT CARD DESIGN



*We provide full-scale support
in the circuit card
manufacturing process*

Capitalizing on state-of-the-art technology, Ogden ALC will expertly redesign or duplicate electronic systems in aircraft, missiles, ground support systems and trainers. Our highly skilled personnel are significantly increasing and extending service life, while reducing maintenance and costs to the avionics community.



Computerized capability for schematic design of circuits

Reverse Engineering:

- New design, development and manufacturing
- Analog, digital and microwave simulation and testing
- Schematic design capture
- Reliability testing
- Thermal analysis
- Environmental Stress Screening (ESS)

Circuit Card Manufacturing:

- Staffed with highly skilled personnel
- Precision manufacturing of circuit cards up to 32 layers
- Utilizing manufacturing technologies such as through-hole, surface mount, multilayer, infrared and wave soldering with these capabilities:
 - Production of 5mm circuits
 - Two-sided exposure
 - Maintains highest industrial standards
 - Latest artwork techniques and procedures
 - Materials include fiberglass, flexible kapton, duriod and polystyrene
 - Quality products meeting Mil-Q-9858A

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TECHNICAL SERVICES FOR AVIONICS AND ELECTRONICS

CAPABILITIES:

Ogden ALC circuit card manufacturing personnel are among the best in the business. Our highly trained engineering staff has expertise in aerospace concepts and technologies. We are proficient in reverse engineering and can help with system upgrades and supportability problems. Ogden will provide you with detailed engineering drawings, processes and procedures upon request.

We enjoy working with our customers as well as for them. Whether it be items that need to be sewn or patched, or the development and manufacture of circuit cards, engineering design support or calibration of precision measurement equipment, just one call is needed.

PAST ACCOMPLISHMENTS:

We take pride in our capability to design and develop answers to your critical needs. An example of this unique ability is the development of the fault analyzer tester (FAT), which will extract information from the C-141 antiskid box and display fault data on a liquid crystal display. The FAT box is completely compatible with the newly designed C-141 antiskid BITE card which records information/faults pertaining to the brakes/landing gear that occur during ground tests, taxi and landing and takeoffs.

We have completed a major modification to upgrade the existing analog system on the H-53 helicopter with an analog/digital system. Applying reverse engineering and new technologies, we improved and enhanced the overall function and provided long-term supportability. The mean time between failure was extended from 9.6 hours to an expected 2,000 hours.

DIVERSE SPECIALTY SHOPS:

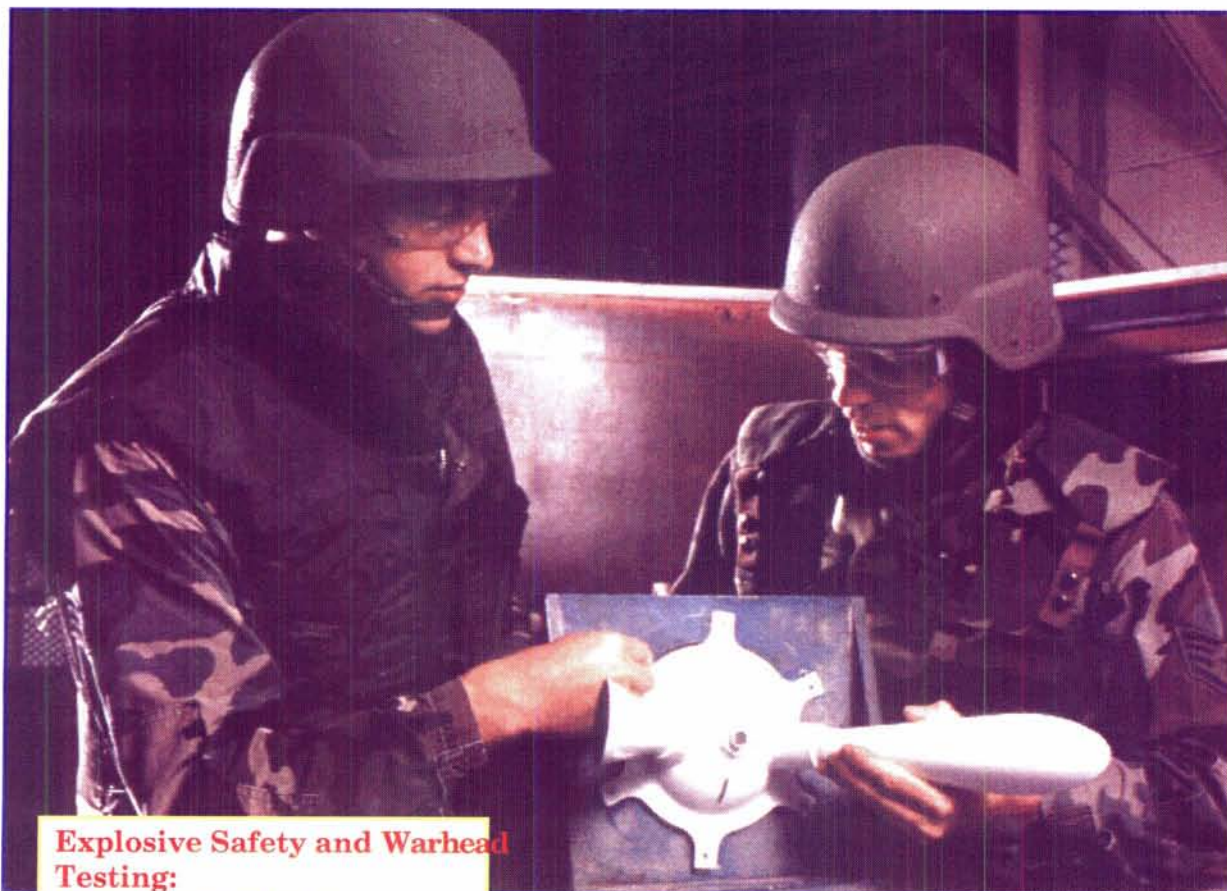
- Precision Measurement Equipment Laboratory (PMEL)*
- Parachute repair and packing*
- Battery service facility*
- Rubber mold design and manufacture*

For additional information, please call or write Ogden Air Logistics Center
Technology and Industrial Support Directorate
Hill AFB, UT 84056-5999
DSN: 458-2719 or Commercial: (801) 777-2719

MUNITIONS TEST AND EVALUATION TEAM

MUNITIONS

Ogden ALC's Munitions Test and Evaluation Team provides top-notch test facilities for performing aging surveillance, life cycle and shelf and service life testing on component items. Our ability to respond quickly to customer needs is the result of our flexible and expert management procedures and diversified equipment.



Explosive Safety and Warhead Testing:

- Propagation analysis
- Hazardous classification testing
- Warhead fragmentation testing
- Conventional munitions testing

Component Testing:

- Storage
- Preparation
- Environmental conditioning
- Instrumentation
- Static fire of munitions and missile components

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MUNITIONS TEST AND EVALUATION TEAM

CAPABILITIES:

The Munitions Test and Evaluation Team can perform testing on component items which include rocket motors, gas generators, impulse cartridges, cable cutters, safe and arm fuses, engine starter cartridges, thermal batteries and bomb ejection racks.

We can perform propagation and warhead testing on the Utah Test and Training Range. Some of our capabilities include firing configurations for Peacekeeper components, Minuteman rocket motors, and MK82 and MK84 conventional bombs. We can test explosive weights ranging from 100 pounds to 500,000 pounds, as well as conducting warhead fragmentation tests.

FACILITY SIZE:

The Component Test Facility includes a walk-in condition bay (300 to -70 degrees Fahrenheit) and a rocket firing bay. There are also two centrifuges which can generate up to 5,000 G-pounds acceleration and an altitude chamber providing atmospheric conditions up to 300,000 feet.

Utah Test and Training Range is located on 2,800 square miles of DOD land and has 17,000 square miles of military-controlled air space. The range has a CBU Valley test area up to 500,000 pounds.

INTEGRATING TECHNOLOGIES IN:

- Performs vibration and acceleration*
- Dynamic and drop testing*
- Techniques to record/compile data during tests*
- Record data through high-speed photography*

TEST FACILITIES:

- Fuse testing room
- Rocket motor firing bay and block house
- Vibration tables for shock
- Altitude chamber simulating to 300,000 feet
- Bomb ejection rack
- Centrifuges for acceleration tests

For additional information, please call or write Ogden Air Logistics Center
Commodities Directorate Business Office
Hill AFB, UT 84056-5990
DSN: 458-7351 or Commercial: (801) 777-7351

INSTRUMENT AND ELECTRICAL REPAIR CAPABILITY

The Ogden ALC Technical Repair Center is your prime source of repair and manufacture of all wire harness and cable assemblies. We currently service all electrical cables for the F-4 and F-16 aircraft.

Wire harness manufacture

Electrical Cable Services:

- Wire harness and cable manufacture
- Prototype modification
- Kit proof and acceptance testing



Instruments:

- Exhaust temperature gauges
- Fuel indicators
- Liquid oxygen indicators
- Pressure transmitters
- Tachometers
- Horizontal and vertical accelerometer
- Correction and heading indicators
- Attitude and direction indicators



Instrument repair

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Air Logistics Center

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INSTRUMENT AND ELECTRICAL REPAIR CAPABILITY

CAPABILITIES:

Ogden is the prime source of repair and manufacture of all electrical cables for the F-4 and F-16 aircraft. The capability exists to repair by means of rebuilding or complete manufacture of wire harness and cable assemblies for all government-operated aircraft.

We can perform fault isolation, repair and test on new generation instruments such as F-16 and C-5A digital systems and repair analog instruments on older generation aircraft.

The expertise of the repair technicians and the diversity of test equipment and technical data maintained by the Instrument Shop provides a cost-effective source of repair for all types of instruments, from the latest technology to vintage instruments that are still in service.

We can provide a unique source of repair for aircraft navigational instruments.

FACILITIES:

The Repair Shop is located in an isolated area on Hill AFB that eliminates radio and magnetic interference resulting in a high degree of accuracy in the testing of navigation equipment.

For additional information, please call or write Ogden Air Logistics Center
Commodities Directorate Business Office
Hill AFB, UT 84056-5990
DSN: 458-7351 or Commercial: (801) 777-7351

SCIENCE AND ENGINEERING LABORATORY

SCIENTIFIC ANALYSIS



Gas Chromatograph / mass spectrometry

Ogden ALC's Science and Engineering Laboratory is a unified team of professionals dedicated to meeting the complex analytical challenges found in today's industrial environment. Backed by instrumentation and equipment, our highly trained scientists, engineers and technicians are fully capable of meeting any and all of your science and engineering requirements.

Chemical Sciences Laboratory:

- EPA/Utah State "certified"
- Employs the most "Advanced Analytical Techniques" available
- Analysis for hazardous chemicals in water, soil, oils, fuels, paint, etc.
- Organic/inorganic compound identification
- Analyzes contaminants in fuels and industrial process fluids
- Performs shelf-life analysis on sensitive materials



Surface analyzer multi-probe equipment

Material Science Laboratory:

- Capable of performing intricate failure analysis on most materials
- Responsive scientifically tested first article inspections
- Precision measurements to millionths of an inch

Engineering Support:

- Simulation modeling
- Statistical analysis
- Development of reliable and maintainable engineering tools
- Science and Technology Information Office (STINFO)

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SCIENCE AND ENGINEERING LABORATORY

CAPABILITIES:

Reliable laboratory analysis is vital in meeting today's environmental demands and in maintaining high standards required in today's systems and maintenance processes. We have more than 90 highly trained and skilled scientists, engineers, technicians and support personnel.

Established in 1990 our Quality Verification Laboratories (QVL) can provide expertise in dimensional measuring, microcircuit and component failure analysis, and software validation and verification

ANALYTICAL METHODS:

- Gas chromatography
- Gas chromatography / mass spectrometry
- High pressure liquid chromatography
- Atomic absorption spectrometry
- Inductively coupled plasma spectrometry
- Infrared spectrometry
- Polarized light microscopy
- Phased contract microscopy
- Toxic characteristics leaching procedures
- Standard wet chemistry services

FACILITIES:

The lab occupies more than 50,000 square feet and is comprised of a multitude of advanced scientific instruments for laboratory analysis

QUALITY SCIENCE & ENGINEERING SERVICES:

- Environmental Analysis*: Cost-effective analysis using EPA proven methods and quality techniques
- Chemical Analysis*: Accurate organic and/or inorganic chemical identification and quantification of literally thousands of compounds and elements
- Material Analysis*: Precise mechanical and analytical techniques are used in our labs to effectively test both simple and complex materials
- Failure Analysis*: In our facility practically any material or item you have can be analyzed to determine the reason for its failure
- Dimensional Quality Verification Center (QVC)*: No matter the complexity, we can perform accurate measurements with a high degree of confidence
- Electronic QVC*: Expertise & equipment to help find the elusive "root cause" of failures in your electronic components
- Software IV & V*: Independently analyze software to assure its accuracy and reliability, and that it will meet our customer's requirements
- Engineering services*: Our engineers literally have decades of experience in overcoming the challenges in an industrial complex. If you have a problem, consult with us first

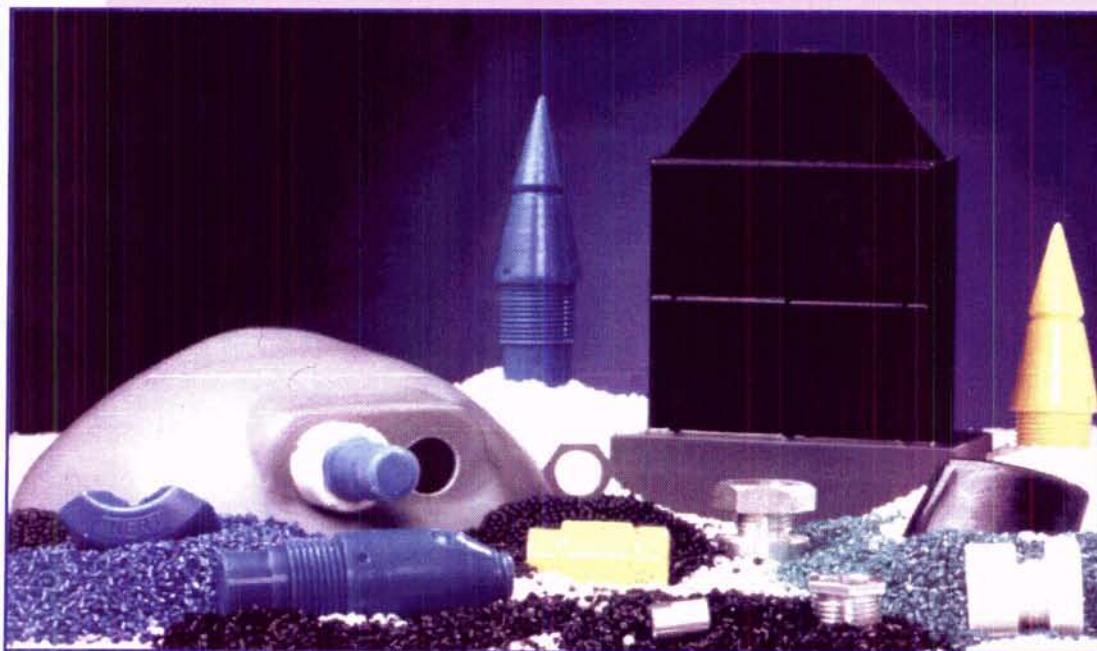
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Technology and Industrial Support Directorate
Hill AFB, UT 84056-5999
DSN: 458-2719 or Commercial: (801) 777-2719

MOLDING PROCESS

Our ability to mold and duplicate a large variety of materials and items provides flexibility and alternatives not commonly available in aircraft maintenance capability.

Our Center provides:

- Economical alternative to standard manufacturing techniques
- Molding exotic polymers with properties superior to many metals
- Resultant savings to DOD customers
- Ability to mold thermo-set and thermo-plastic materials



Examples of injection and rubber molding

Our capabilities include:

- Laminating processes for urethane resin
- Patented process for vacuum resin lamination
- Seals and O-rings from new materials that exceed required performance criteria
- Molding processes for silicone, polyurethane, polyester, and epoxy materials

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MOLDING PROCESS

CAPABILITIES:

We offer our customer an alternative to standard manufacturing procedures and materials that will meet or exceed your requirements. This is accomplished through the use of new exotic molding materials and, in some cases, redesign of your part structure. An example of our process is the redesign of an aluminum data device cartridge. A small design change and substitution of carbon-filled nylon for aluminum resulted in a much stronger part and produced a \$390,000 savings on 400 parts. We also developed and prototyped a plastic solid fuel rocket motor housing for Edwards AFB from an injection-molded crystal polymer.

We are capable of molding liquid crystal polymers to include Xydar SRT 300, Xydar SRT 500, HX 400, Vectra A950, B950, B230, and 630. Also, we have experience with engineering plastics that includes Ultem, Fortron, Rytron, Zytel, Nylatron (some carbon and glass filled), polyethylene, polypropylene, and acrylic plastics.

A WORD FROM OUR CUSTOMERS:

"I appreciated the timely response of your Plastics Shop to the needs of the Astronautics Laboratory for test specimens and prototypes injection molded of advanced polymers. The response of the Plastics Shop personnel in manufacturing the test specimen mold and injecting the first set of specimens has been outstanding."

Associate Director, Propulsion Division
Astronautics Laboratory (AFMC), Edwards AFB, California

INTEGRATING TECHNOLOGIES IN:

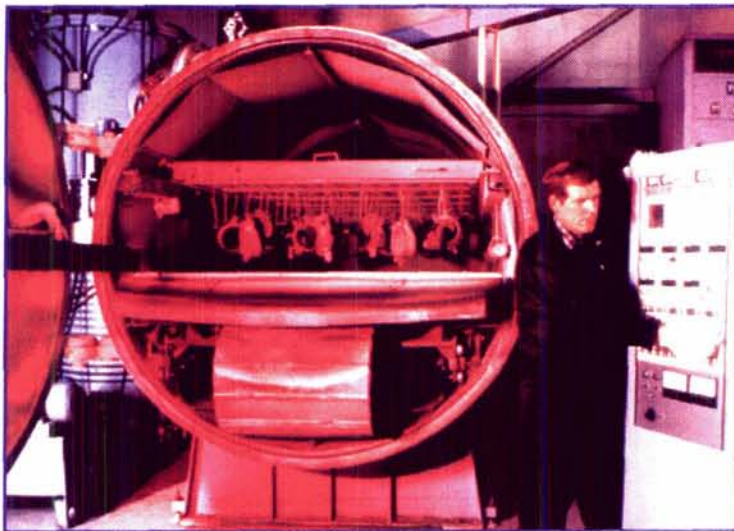
- Liquid crystal polymers
- Engineering plastics
- Polyurethane impregnated fiberglass

For additional information, please call or write Ogden Air Logistics Center
Aircraft Directorate Business Office
Hill AFB, UT 84056-5990
DSN: 458-8080 or Commercial: (801) 777-8080

INDUSTRIAL SUPPORT

COMPONENTS

Capitalizing on state-of-the-art technology and advanced engineering, Ogden ALC can provide a full spectrum of support functions to refurbish your precision components. With an established reputation for on-time delivery, our certified technicians and on-site engineers can design and upgrade large or small components to your specifications at an affordable cost.



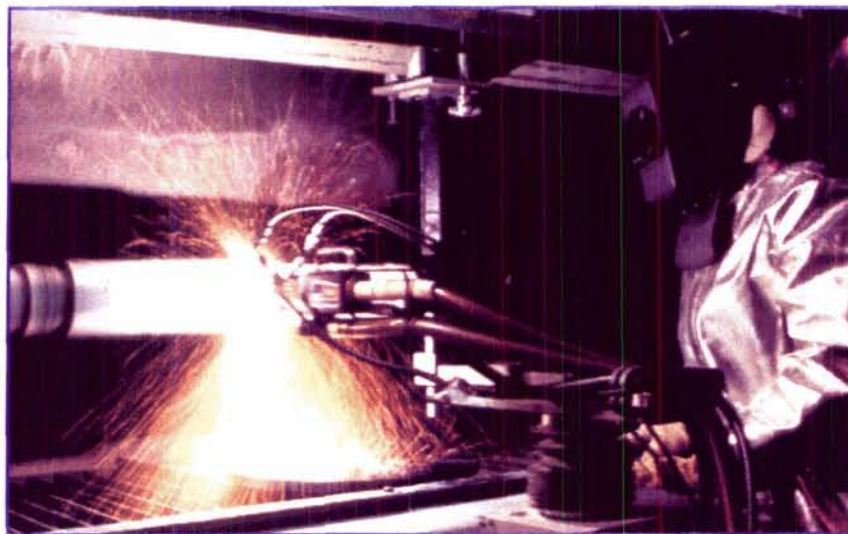
Ion vapor deposition processing

Metal Processing:

- Ion vapor deposition
- Anodize Type I, II, and III
- Hard chrome/nickel
- Brush plating
- CNC Shotpeen
- Continuous flow heat treat

Thermal Spray:

- Plasma, combustion and electric arc
- Large surface ID and OD
- Specialized coatings
- Controlled welding and cutting
- Specialized heat treat



Thermal spray process

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INDUSTRIAL SUPPORT

CAPABILITIES:

Our commitment to excellence is a commitment to satisfy you, our valued customer, as we repair your specialized components. Ogden's ultramodern industrial support operations and our certified technicians, supported by process engineers and a high-tech metallurgical laboratory, can handle your most precise specifications.

Ogden ALC has the people, systems and technology to meet the needs, requirements and expectations of its customers, both now and into the 21st century.

FACILITIES:

Ogden ALC has one of the largest industrial support facilities: 97,000 square feet of dedicated space for electroplating, heat treat and thermal spray.

Thermal Spray:

- Metal restoration
- Plasma, combustion and arc spray processes
- Thermal spray for aircraft and industrial applications
- Specialized coatings

Welding:

- Aircraft/missile requirements
- Welding certifications
- CNC cutting operations
- Inert gas chamber

Heat Treat:

- Aerospace alloys
- Tool steels
- Induction heat treat and anneal
- Hardness testing

INTEGRATING TECHNOLOGIES IN:

Electroplating:

- Ion vapor deposition (aluminum)*
- Hard chrome / nickel on high strength steels and aluminum*
- Anodize Types I, II, and III*
- Conforming anode fixturing*
- ID and OD plating*
- Brush plating*
- CNC and manual shotpeening*

For additional information, please call or write Ogden Air Logistics Center
Commodities Directorate Business Office
Hill AFB, UT 84056-5990
DSN: 458-7351 or Commercial: (801) 777-7351

COMPETITIVE MANUFACTURING

MANUFACTURING

Diversified capabilities enable Ogden ALC's special competitive manufacturing team to produce your most complex product. We can provide the most rapid delivery of cost-efficient parts to meet your critical demands for highly precision-machined parts and investment castings. "Quality-manufactured parts" is our motto.



Machine Shop:

- CNC milling and turning
- CAD/CAM design and programming
- Complete tool and die and mold-making facility
- CNC electrical discharge machines
- CNC coordinate measuring equipment
- CNC tracing and machining centers

Investment Casting:

- Largest investment casting facility in the USAF
- Designed for large or small production runs
- Cast-to-size accuracy reduces or eliminates costly machining operations
- Complies with aerospace specifications
- Fast delivery and competitive pricing

Ogden 
Air Logistics Center

Hill Air Force Base, Utah

COMPETITIVE MANUFACTURING

CAPABILITIES

The Competitive Manufacturing Team and facilities equal on-time delivery for your special manufacturing processes.

The certified technicians, tool and die makers, CNC operators and programmers and investment casting technicians and design engineers can build your prototype, one-of-a-kind or large-quantity items to your specifications.

A state-of-the-art investment casting facility ensures aerospace quality castings while maintaining competitive pricing. All of our products undergo stringent quality control and testing such as x-ray, magnetic particle inspection, chemical analysis, mechanical tensile testing and dimensional inspection. Our sand foundry technicians can pour a wide variety of non-ferrous castings.

FACILITY SIZE:

Our Competitive Manufacturing Team efficiently uses over 90,000 square feet to support our customers' needs. We have overhead cranes and mobile material handling equipment to safely expedite your products through the production stations.

ON-SITE ENGINEERING SUPPORT:

Ogden ALC assigns its own engineers to each process, product and weapon system to assist technicians in performing manufacture, repair and modification.

INTEGRATING TECHNOLOGIES IN:

- *Computer-aided design and manufacture (CAD / CAM)*
- *Two- to five-axis CNC machines, programs and fixtures*
- *Digital probing*
- *Investment casting and injection molding*
- *Tool and die manufacturing*
- *CNC coordinate measuring*

For additional information, please call or write Ogden Air Logistics Center
Commodities Directorate Business Office
Hill AFB, UT 84056-5990
DSN: 458-7351 or Commercial: (801) 777-7351

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CRITICAL INFRASTRUCTURE



United States Air Force

HQ OGDEN AIR LOGISTICS CENTER

OFFICE OF PUBLIC AFFAIRS

HILL AFB, UTAH 84056

MEDIA RELATIONS BRANCH (801) 777-5201 AV458-5201

HILL AIR FORCE BASE

Located about five miles south of Ogden and 30 miles north of Salt Lake City, Utah, Hill Air Force Base has served as a major aircraft support and maintenance facility for over half a century. The earliest document referring specifically to the Ogden Air Depot, which was sited on land adjacent to the already-established Ogden Ordnance Depot, is dated April 7, 1939. A few months later, the War Department designated the site Hill Field in honor of Maj. Ployer P. Hill, who died while piloting the original model of the B-17 bomber at Wright Field, Ohio. Official ground breaking for the base occurred in January 1940. In February 1948, Hill Field was officially redesignated Hill Air Force Base.

Today, the major organization on the base is the Ogden Air Logistics Center, commanded by a major general, who is the ranking individual at the base. The center is assigned to the Air Force Materiel Command, headquartered at Wright-Patterson AFB, Ohio.

One of five air logistics centers in the United States, Ogden ALC is assigned worldwide logistics management and maintenance support responsibilities for the nation's fleet of strategic intercontinental ballistic missiles (ICBMs). Included are the Minuteman and Peacekeeper classes of missiles. More than 100 Minuteman missiles are processed annually for programmed depot maintenance and modification. A tactical missile system for which Ogden ALC has maintenance responsibility is the Maverick air-to-ground missile, which is carried by a variety of Air Force aircraft.

Aircraft which are maintained by Ogden ALC include the F-16 Fighting Falcon, the F-4 Phantom II and the C-130 Hercules. Annually, an average of 321 F-16, F-4 and C-130 aircraft are processed for depot maintenance, repair or modification at Hill.

In addition, Ogden ALC has worldwide responsibility for Air Force item management; depot-level overhaul and repair of all Air Force landing gear, including wheels, brakes and struts; and all Air Force photographic and reconnaissance equipment.

Ogden ALC also has sole logistics responsibility for all Air Force aircraft and missile training simulators. The simulators are used worldwide to enhance the skills of aircrew members and missile launch crews by providing realistic training. Nearly all flight, navigation, weapons delivery or missile launch conditions can be effectively simulated by these training devices.

Another significant mission of the center is logistics management of all Air Force munitions, bombs, cartridges, air crew escape devices and tactical missiles. High reliability is assured through extensive testing and maintenance programs for these items and related guidance and control systems.

The Utah Test and Training Range, located 48 miles west of the base, is used for testing munitions and propellants up to the most powerful ICBM rocket motors and explosive components. The UTTR is also used by base transient aircraft and other military services for flight training operations.

In relation to its munitions responsibilities, Ogden ALC hosts the 649th Explosive Ordnance Disposal Squadron. It is the only EOD squadron in the Air Force and must be ready to respond to incidents involving munitions anywhere in the world. Another Air Force Materiel Command unit is the 649th Combat Logistics Support Squadron, which provides highly skilled mobile military teams to accomplish rapid aircraft battle damage repair for hundreds of F-16 and F-4 aircraft annually throughout the world.

Other units at Hill AFB round out the base's role with highly visible and important missions. These units include the 388th Fighter Wing (Air Combat Command), which was the first Air Force unit to fly the multi-role F-16 Fighting Falcon; the 419th Fighter Wing (Air Force Reserve), the first Reserve unit to receive the F-16; the 84th Radar Evaluation Squadron (Air Combat Command), which tests manual and computerized ground radar systems; and the 545th Test Group (Air Force Materiel Command), a unit of the Air Force Flight Test Center, Edwards AFB, Calif., which performs testing and training of Department of Defense resources.

Meeting the numerous needs of all these disparate units and their people is the mission of the 649th Support Group. Providing the equivalent of municipal services, the support group is responsible for hiring, pay, security, fire protection and transportation, as well as morale, welfare and recreation activities. The support group commander holds the grade of colonel and is responsible for providing a good working environment and for enhancing the quality of life for all base personnel.

Physically, the Air Force manages 6,698 acres representing the base proper and approximately 900,000 acres on the Utah Test and Training Range. The value of real estate, equipment and inventory is estimated to be about \$8 billion.

-more-

Firmly established as the state's largest employer, Hill AFB has a significant and positive impact on the Utah economy. Its 17,000 military and civilian personnel earn an annual payroll of almost \$655 million. Total new procurement each year amounts to nearly \$1.5 billion, with over 7 percent typically contracted to Utah companies, many of them small or disadvantaged firms. Annual state and federal taxes and deductions paid by Hill's work force total some \$100 million. Charitable contributions by base employees exceed a half million dollars.

Added to the economic impact of the current work force must be that of the many military and civilian retirees living nearby. With some 26,000 civilian and 8,100 military retirees in the Hill area, annual retirement payments total more than \$490 million.

Finally, economic impact models estimate that Hill supports more than 11,000 secondary jobs off base in the surrounding community for a total local economic impact of almost \$2 billion.

January 1993



Fact Sheet

United States Air Force

HQ OGDEN AIR LOGISTICS CENTER OFFICE OF PUBLIC AFFAIRS HILL AFB, UTAH 84056
MEDIA RELATIONS BRANCH (801)777-5201 AV 458-5201

HILL AFB POPULATION

as of 30 Apr 1993

MILITARY

AFMC 2249

TENANTS

ACC	2342
ATC	55
AMC	41
OTHER	32

TENANTS SUBTOTAL 2470

TOTAL MILITARY

4719

CIVILIAN

AFMC

ON BASE	9034
OFF BASE	380
(RIVET MILE, ETC.)	

AFMC SUBTOTAL 9414

TENANTS SUBTOTAL 751
(AFRES, ACC, ETC.)

OTHERS

NAF 768

BX	230
COMMISSARY	43
MWR	495

DDOU 649

DRMO 58

OTHERS SUBTOTAL 1475

TOTAL CIVILIAN

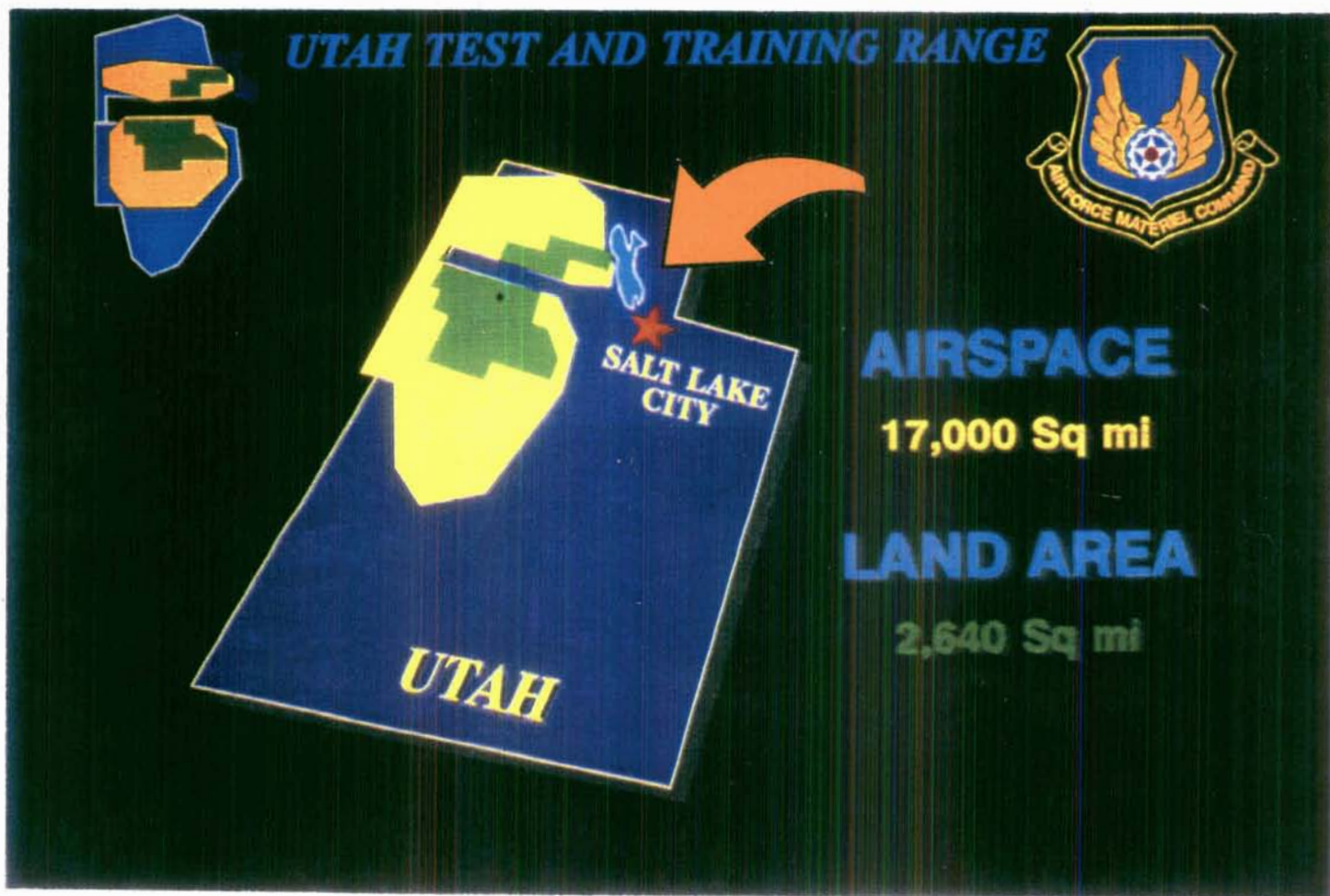
11640

GRAND TOTAL (MILITARY AND CIVILIAN)

16359

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UTAH TEST AND
TRAINING RANGE



Close proximity of UTTR to Hill AFB is a valuable asset for Airmunitions and missile support.

UTAH TEST AND TRAINING RANGE (UTTR)

Mission

- Support test and training customers on a Major Range and Test Facility Base (MRTFB) open-air range

Significant Factors

- Hill/Wendover/Dugway ranges consolidated into UTTR
 - Directed by Deputy SECDEF to support cruise missile testing
 - UTTR designated a Major Range and Test Facility Base of the AFFTC (Edwards Flight Test Range and UTTR)
- MRTFB supports all three services
 - In airspace, overlaps Dugway Proving Ground (DPG, a MRTFB)
 - DPG/UTTR jointly support test and training
- Largest DOD controlled airspace (surface up, 92 by 207 NM)
 - 7,000 square NM of Restricted Airspace
 - Overlaps DPG (managed by AF)
 - 7,500 square NM of Military Operating Area
- Un-encroached DOD withdrawn land (2675 square miles)
 - Includes both Army (1250 sq miles) and AF withdrawn land
 - Surrounded by unpopulated Bureau of Land Management and Utah State land
- Range instrumentation
 - Data collection, communication, and processing of data for test & evaluation and operational training
- Range facilities
 - 7 ground test areas
 - 13 active air-to-ground/ground-to-ground targets
 - 7 tactical target complexes, comprising over 400 targets
- Control facilities
 - Test Mission Control for communication and real-time processing of test data
 - Operation Training Mission Control for communication and real-time control, post-flight debriefing of training data
 - Air Operations Control for air traffic control of UTTR airspace and "ground control intercept" for operational training
- Airfield support
 - Hill AFB (OO-ALC managed)
 - Michael Army Airfield (DPG managed)
 - Wendover Airport (city of Wendover UT managed)
 - North Range Assault Strip (545TG managed)

Discussion Points

- UTTR is recognized as the likely fallback location for California's and Florida's ranges if environmental pressures and encroachment issues limit their testing

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OASIS SUPPORT FUNCTIONS



Oasis support personnel building a target grid pattern for
airmunitions test at UTTR.

OASIS

Mission

- Provide all base support functions required for the Utah Test and Training Range (UTTR)

Strength

- 44 Civilian, 9 Military (649th Range Squadron)
- Up to 150 people support the work at Oasis and UTTR, including the 501st Range Control, 514th Test Squadron, 545th Test Group. Staffing is based on activities scheduled for the day

Significant Facts

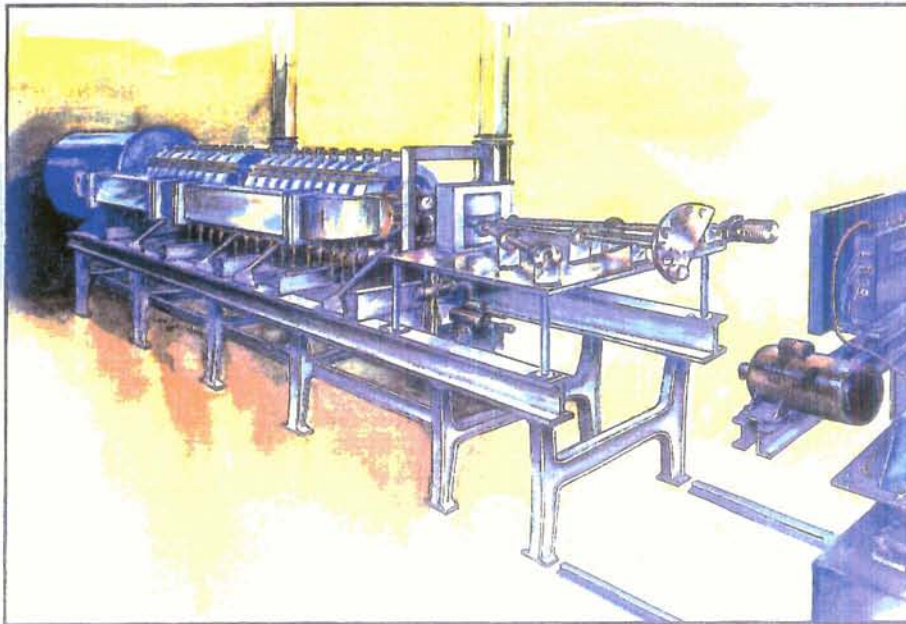
- On-site housing and recreational facilities available
- Storage area for Minuteman and SRAM missiles, and large motors
- Missile Maintenance Facilities
- Thermal Treatment Unit used by 649th Explosive Ordnance Disposal Squadron to dispose of excess munitions, rocket propellant and rocket motors
- High speed camera equipment available for recording propagation testing, aircraft bomb testing, fuse tests, burn rocket motors and for scoring competitions

Discussion Points

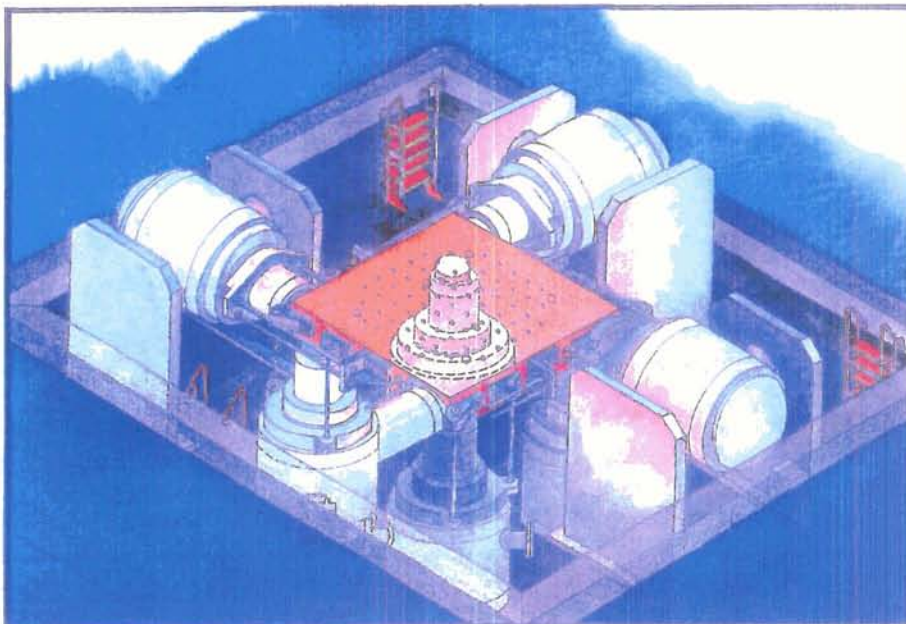
- 649th Range Squadron personnel provide
 - Road construction
 - Construct and place target pads, target rehabilitation and maintenance
 - Staff members include civil engineers, fire fighters, security police
 - Supports all testing (new weapon systems, munitions, rocket motors, bombs, and airplane testing)
- Supports 2100 square miles of land

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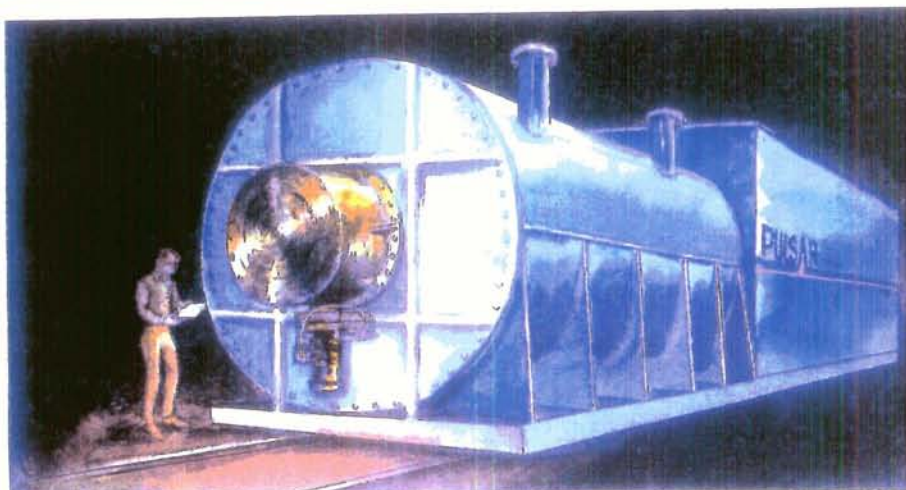
LITTLE MOUNTAIN
COMPLEX



SHOCK AND VIBRATION LABORATORY



PI-958 FLASH X-RAY



SVIC
SUSTAINABILITY & VIBRABILITY
INTEGRATION CENTER



EMP LABORATORY

SLOW BANK (LASER GAP)

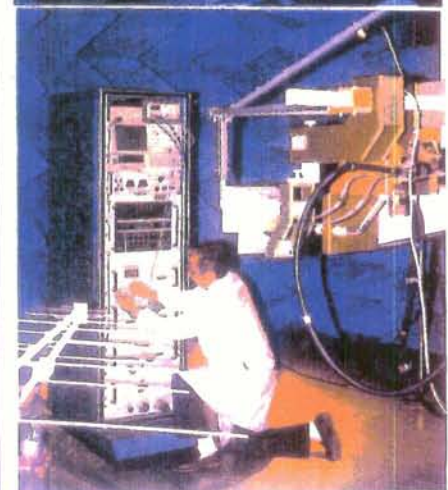
• Amplitude	0 to 60 kV, 95 kJ
• Rise time	100 nsec
• Fall time	2.6 msec
• Source impedance	50 ohms nominal

2-FLAP (FAST LASER ACTUATED PULSER)

• Amplitude	0 to 100 kV, 8 kJ
• Rise time	< 4 nsec at 1000 ohms
• Fall time	Load dependent
• Source impedance	Variable (can be used differentially)



EMI/EMC LABORATORY



LITTLE MOUNTAIN COMPLEX SURVIVABILITY AND VULNERABILITY INTEGRATION CENTER (SVIC)

MISSION

- Assess nuclear hardness and survivability of ICBM subsystems and components. The SVIC has supported survivability of other weapon systems such as F-16, Navy Trident, and Space Defense Initiatives

SIGNIFICANT FACTS

- SVIC laboratories (state-of-the-art)
 - Simulators for gamma radiation
 - Linear accelerator
 - Beam energy varied from 5 to 20 MeV
 - Produce 80 billion rads(si)/sec
 - Flash x-ray machines
 - Can produce 5krads/(si)/sec at the face plate center and 6 Mev peak energy
 - Nuclear shock and vibration
 - Largest available triaxial shakers (1.75 peak disp)
 - 80,000 pound force - vertical axis
 - 40,000 pound force - both horizontal axes
 - 5 to 2,000 Hz band width
 - Vibration simulation
 - Nuclear shock, mission in-flight vibration
 - Transportation and handling
 - Buried article simulation
 - Air blast over pressure and acceleration 1,000 psi pressure and 1,000 g's simultaneously
 - Electromagnetic Pulse (EMP)
 - Simulation using high energy pulsters and laser trigger system
 - Square, double exponential, arbitrary wave form
 - Electromagnetic Interference (EMI)
 - Simulated in computer controlled anechoic chamber
 - Modern test cells (state-of-the-art)
 - Fiber optic data acquisition system
 - Radiated fields to 20 v/m from 10 khz to 40 ghz

DISCUSSION POINTS

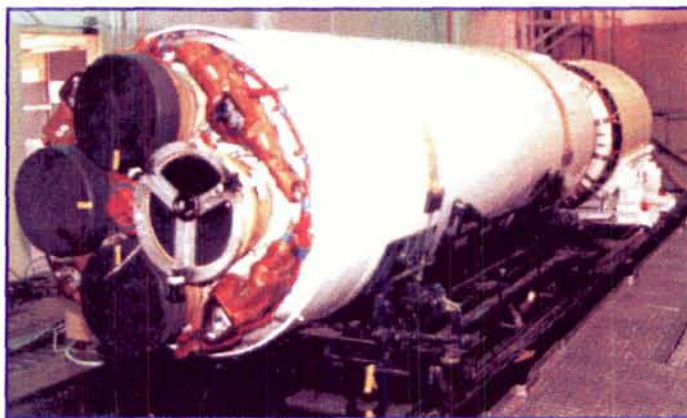
- All laboratories are general purpose
 - Provide simulated environments for any device under test
 - Independent data acquisition and reduction system
 - Employees computer controllers
 - Equipped with small general purpose machine shop

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OTHER "WORLD-CLASS" CAPABILITIES

MISSILE/LAUNCH VEHICLE REPAIR AND ASSEMBLY

With over three decades of experience, Ogden has developed the most comprehensive missile maintenance capability within DOD. Production Acceptance Program certified specialists are trained to cover the full spectrum of services associated with ballistic missile or space launch vehicle needs.



Rocket motor being assembled

Missile Component Repair Capabilities:

- Liquid fuel rocket modification, repair, test, and assembly
- Solid fuel motor repair, modification, assembly, and testing
- Ultrasonic solid motor inspection

Missile Assembly and Handling Capabilities:

- Disassembly, assembly, modification and repair of missiles and launch vehicles
- Handling, preparation for storage or shipment, and repair of missiles and launch vehicles



Assembled booster being prepared for shipment

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Air Logistics Center

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.... Today*

MISSILE/LAUNCH VEHICLE REPAIR AND ASSEMBLY

CAPABILITIES:

Our missile component repair and assembly/modification shops have the capabilities needed to receive, disassemble, analyze, repair, modify, reassemble, check and ship missiles and launch vehicles. Many of our capabilities, supporting our intercontinental ballistic missiles, are unique within the Department of Defense.

FACILITY SIZE:

Missile component and vehicle assembly facilities comprise a large part of our center. There are 13 environmentally controlled missile assembly buildings, designed to handle hazard classification/division 1.1 propellants. Twelve maintenance facilities, along with additional environmentally controlled storage buildings, make up our facilities base for liquid and solid rocket component support.

For additional information, please call or write Ogden Air Logistics Center
ICBM Directorate
Hill AFB, UT 84056-5990
DSN: 458-1928 or Commercial: (801) 777-1928

LANDING GEAR TEAM

Ogden ALC is the prime source for management and overhaul of all USAF landing gear assemblies. With 40 years of experience in depot overhaul, our certified technicians will provide you with on-time delivery. Our specialty is precision grinding, plating and machining.



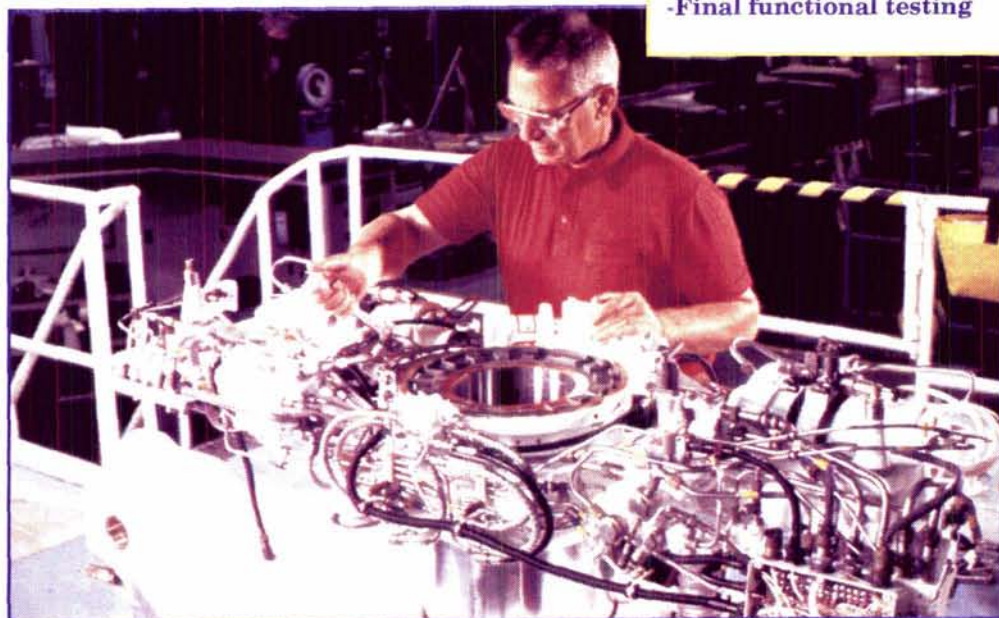
Precision grinding landing gear components

Precision Grinding Capabilities:

- CNC grinding and honing
- Climate-controlled environment
- Specializing in landing gear components
- Maintaining critical tolerances and finishes
- High strength metals

Landing Gear Capabilities:

- In-house engineering support
- Carbon disk brake repair
- Semiautomated material handling
- Computerized component parts cleaning and painting
- Full range of plastic/glass bead blast
- Final functional testing



Certified technician assembling a C-5 Galaxy main gear

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Air Logistics Center

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.... Today*

LANDING GEAR TEAM

CAPABILITIES:

As the USAF's primary source of landing gear management and repair, Ogden ALC can provide state-of-the-art quality products for all customers. Forty years of experience, certified technicians and the world's largest noncommercial facilities assure you of top quality performance.

We produce 4,600 complete gear assemblies for 27 different weapon systems annually. These vary from the very small T-38 Talon nose gear to the massive, three-ton C-5 Galaxy main gear.

Ogden ALC's Landing Gear Team can handle your most demanding needs.

ENGINEERING AND LABORATORY SUPPORT:

Sustained engineering and laboratory support for all landing gear overhaul repair processes ensure finite element analysis for evaluating and solving problems on landing gear components.

FACILITY SIZE:

The Landing Gear Facility has 382,000 square feet of dedicated overhaul capabilities enhanced by two miles of automated overhead material handling. This facility, in conjunction with its support functions, assures you of one source for all repair needs.

ENVIRONMENTAL COMPLIANCE:

All environmental requirements are strictly adhered to. Our air handling systems meet or exceed EPA standards and waste waters are processed through our state-of-the-art Industrial Waste Treatment Plant.

INTEGRATING TECHNOLOGIES IN:

- Wheel, brake and strut component overhaul and modification
- Complete functional testing operations
- Unique two-for-one carbon brake repair process recycles two worn carbon brake disks into one new disk
- Computer-assisted component cleaning and material handling
- Precision aerospace grinding (with tolerances to .0005 inches and RMS 6)
- Repair processes on aerospace high strength metals

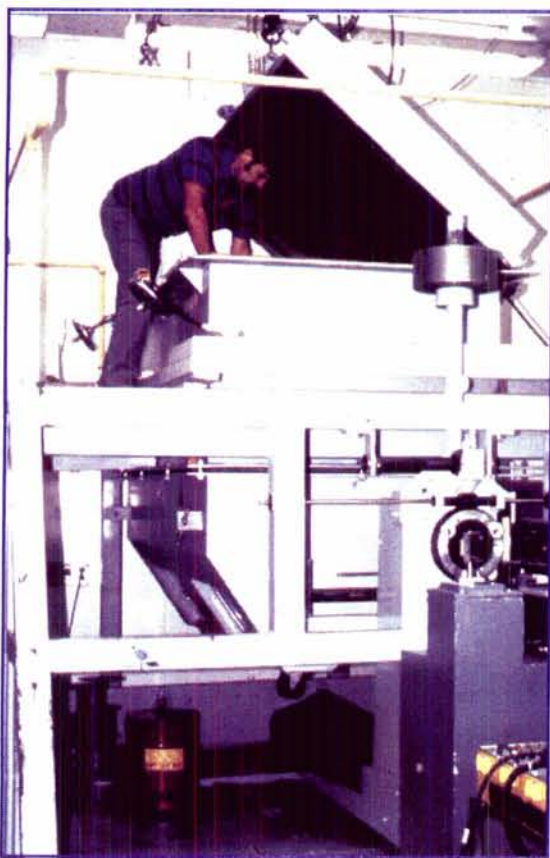
For additional information, please call or write Ogden Air Logistics Center
Commodities Directorate Business Office
Hill AFB, UT 84056-5990
DSN: 458-7351 or Commercial: (801) 777-7351

OPTIC AND PHOTONIC SYSTEMS

Ogden Air Logistics Center can improve your optic and photonic systems and components. Our people, backed by 25 years of experience and state-of-the-art processes and equipment, can thoroughly overhaul and/or modify your current product and test and deliver a better one on time.

Types of Systems We Can Service:

- Film-based cameras, printers and processors and electro-optic sensors
- Periscopes and lasers
- Infrared sensors
- Mapping and hand-held cameras
- Optical lenses and elements



Sensor Environmental Test Chamber



Precision Optical Polishing

Ogden ALC's Photonics Industrial Facility can help our customers with:

- Optical polishing/coating
- Sensor image quality testing
- Film processing analysis
- Digital/analog/RF testing
- Optical characterization

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Air Logistics Center

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.... Today*

PHOTONICS INDUSTRIAL FACILITY

CAPABILITIES

For over 25 years, Ogden Air Logistics Center's skilled employees, unique facilities, and state-of-the-art equipment have provided customers with quality, using:

- A Photographic Image Quality Test Facility which simulates target distances from 650 feet to infinity*
- Three optical coating chambers which deposit materials on optical elements weighing up to 500 pounds and measuring 34 inches in diameter*
- Four different optical polishers which provide the ability to polish concave, convex, and flat optical components*
- A diamond turning lathe specially designed for machining metal components, such as parabolic mirrors*

Our customers include US Air Force, Navy, Coast Guard, Army, DIA and CIA units, as well as several foreign countries. Our Photonics Division has invested millions of dollars to keep our organization prepared for future photonic needs. Let us help you stay on the cutting edge through the 21st century.

FACILITIES:

We use a 30,000 sq. ft. environmentally controlled overhaul facility and a 5,000 sq. ft. management and engineering support facility to help meet our customers' needs.

A Word from our Customers...

"I am very pleased that, due to the outstanding efforts of Hill AFB personnel, critical Navy shortages of EH-38D processors have been eliminated."

Commander, Naval Air Systems Command

For additional information, please call or write Ogden Air Logistics Center
Commodities Directorate Business Office
Hill AFB, UT 84056-5990
DSN: 458-7351 or Commercial: (801) 777-7351

SOFTWARE DEVELOPMENT AND ENGINEERING

OgdenALC leads the Department of Defense in every phase of weapon system software development. Whether you need a modification of an existing weapon system program or the full-scale development of complete operational flight programs, we have the expertise to assist you.

F-16 C/D software development test station



Weapon System Software:

- Simulation software
- Operational flight programs (OFP)
- Software control, support, test and evaluation
- Embedded computer system engineering for modern weapons systems

Automatic Circuit Testing

- Millions of hours of experience
- Complete electronic test solutions
- Automatic Test Equipment (ATE)
- Modification of existing ATE testers



SRU/LRU testing with microwave

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Air Logistics Center

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.... Today*

SOFTWARE DEVELOPMENT AND ENGINEERING

PROFESSIONAL PERSONNEL:

Integrity...Intelligence...Innovation

We have a rich heritage dating back to the 1960s where our testing of automatic electronic equipment led to full-scale development of complete Operational Flight Program (OFP). Years of experience gives our software engineering personnel the skills necessary to satisfy your software challenges. Using unique approaches to unique problems, we have led the way in software support for numerous weapon systems. All of our personnel are well versed in securing, storing and processing classified material with specific expertise in computer security and TEMPEST. We can provide you with dramatically improved product quality with considerable savings.

A growing list of satisfied customers—including the Navy, Marines, Army and Air Force—is our measure of success. Our strict adherence to a quality product in a timely manner translates into your complete satisfaction.

SPECIAL SUPPORT SERVICES:

- Validation / verification expertise*
- Interaction with weapon system development engineers and managers*
- Complete and accurate engineering documentation*
- Level III drawings*
- CAD / CAM schematics and illustration capability*

For additional information, please call or write Ogden Air Logistics Center
Technology and Industrial Support Directorate
Hill AFB, UT 84056-5999
DSN: 458-2719 or Commercial: (801) 777-2719

SOFTWARE TECHNOLOGY SUPPORT CENTER

SOFTWARE TECHNOLOGY

The United States Air Force Software Technology Support Center located at Hill AFB leads the Department of Defense in the enhancement of the latest and the best in software

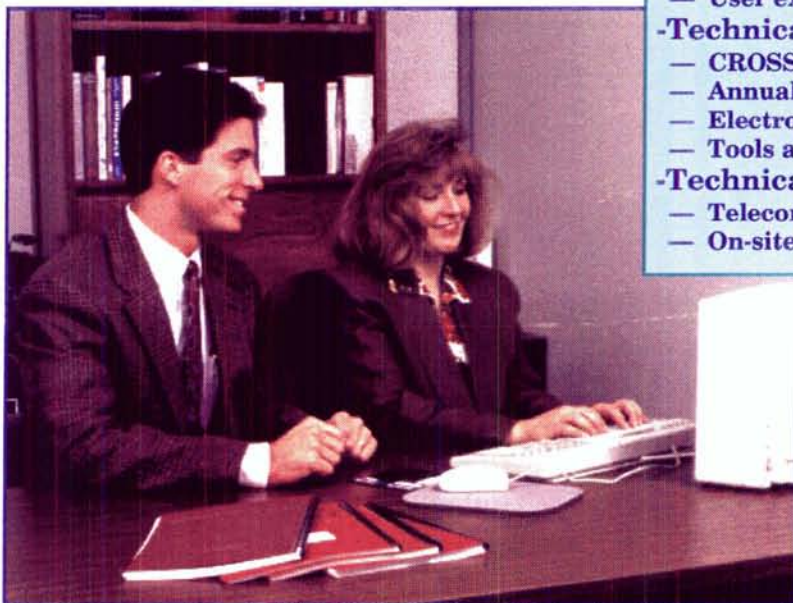


Quality information at your fingertips

technology and in solving software problems. We cultivate software quality, productivity and interoperability improvements in the Air Force by promoting improved business practices, processes and technologies.

Services we provide:

- Technical evaluation
- Tool information
 - Vendor name and address
 - User experience and evaluation
- Technical information distribution
 - CROSSTALK (free monthly report)
 - Annual STSC conference
 - Electronic information system
 - Tools and technology reports
- Technical infusion services by:
 - Telecommunications
 - On-site visits as required



STSC provides excellent customer support

We can help you:

- Enhance software quality
- Improve software productivity
- Encourage proper and efficient use of tools, methods and environment
- Enhance the capability of developers to improve tools, methods, and environments
- Obtain information on points of contact for software technologies

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Air Logistics Center

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.... Today*

SOFTWARE TECHNOLOGY SUPPORT CENTER

CAPABILITIES:

The Software Technology Support Center is the central focal point for technical expertise and management support of software tools, methods and environments. The Software Technology Support Center offers services that help software organizations negate the technical, motivational, and cultural barriers that impede software quality and productivity improvements.

Personnel staffing the Software Technology Support Center—a customer-oriented organization—take pride in meeting and satisfying customer needs while bringing them the latest and the best in software technology. In 1991 the world witnessed the capabilities of United States weaponry. Desert Storm revealed a new age of smart systems: Patriot missiles defended thousands of allies, stealth aircraft and smart bombs gave credibility to the term surgical strike. These systems were reliable, accurate and shared a common thread—software.

A WORD FROM OUR CUSTOMERS:

"...Very valuable as an information conduit to and from Air Force software people. Good job!"

SAF/AQK

"...Excellent (annual STSC) conference...very informative...provided a means of making contacts...keeps us in DOD from reinventing the wheel over and over."

Robins AFB, Georgia

"...Thanks for the outstanding technical support and thoroughly professional guidance we received."

Air Force Global Weather Central

For additional information, please call or write Ogden Air Logistics Center
Technology and Industrial Support Directorate
Hill AFB, UT 84056-5999
DSN: 458-2719 or Commercial: (801) 777-2719

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388th FIGHTER WING



388th Fighter Wing pilots assuring operational readiness of F-16 Fighting Falcons with backdrop of the Wasatch Mountains

388th Fighter Wing (Air Combat Command)

Mission

- Primary role is air-to-surface attack with a secondary responsibility of air-to-air superiority
 - Delivers a variety of munitions in tactical situations, including airpower in support and interdiction
 - Flies approximately 400 sorties (flights) per week to maintain proficiency in radar and visual bombing, low-level navigation, intercepts, and air combat maneuvers
- Ready to mobilize, deploy, and employ three fighter squadrons in support of contingency operations to utilize the F-16 in the full spectrum of combat missions with effective command and control, self-sufficient maintenance, and other logistical support

Strength

- 2,122 people assigned (2,100 military and 22 civilian personnel)

Significant Facts

- Arrived at Hill AFB December 1975
- Received the first General Dynamics F-16 Fighting Falcon in 1979; became the Air Force's first operational F-16 wing in 1980
- Participated in numerous deployments, exercises, and contingencies, including sending two squadrons to Operations Desert Shield and Desert Storm
- Effectively supported 21 deployments in the past year, involving the packing and movement of over 175 aircraft, 1,700 personnel and 200 short tons of aircraft support equipment

Discussion Points

- Ogden Air Logistics Center provides host base support in a number of areas:
 - Total mobility support from 649th Support Group
 - All supply/parts actions by host base supply
 - Vehicle repair/depot actions
 - Orders and delivers all wing munitions
 - Civil engineering supports facilities/construction/maintenance

**419th FIGHTER WING
(RESERVE)**



AFRES 419th Fighter Wing was the "first" reserve unit to fly F-16 Fighting Falcons. The Wing hosts many reservist training exercises in Utah.

419th Fighter Wing (Air Force Reserve)

Mission

- Train and equip three F-16 squadrons -- one located at Hill AFB, one at Luke AFB, Ariz., and one at Tinker AFB, Okla. -- to be capable of worldwide mobility to perform a wide variety of air-to-air and air-to-ground fighter missions.
- Provide entire support packages including maintenance, civil engineering, security, supply, transportation, communication and mission support.

Strength

- 1,951 people assigned (1,659 military and 292 civilian personnel)

Significant Facts

- Arrived at Hill AFB in 1955
- Only Air Force Reserve unit in Utah
- First Air Force Reserve unit to receive F-16s in 1984
- Earned recognition as top fighter squadron in Air Force after winning Gunsmoke, the Air Force's worldwide fighter gunnery competition, in 1985
 - Recognized as runner-up in 1987 in same competition
 - Unit pilot won Top Gun award in 1987

Discussion Points

- Received Air Force Reserve facility award for 1990; acknowledged by AFRES to have one of the best facilities of any Reserve wing
- Routinely trains at Utah Test and Training Range, one of the two top training ranges in the world
- Often hosts other Air Force active-duty and Reserve, Marine, Navy and Canadian units in joint training exercises and daily training
 - Closeness to Canada and West Coast Navy and Marine units makes combined training ideal
- Supports Air Force Reserve and Ogden ALC test modifications and time compliance technical orders for F-16 aircraft prior to worldwide dissemination

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ENVIRONMENTAL MANAGEMENT



Hill AFB was awarded the Gen. Thomas D. White Environmental Quality Award in recognition for an outstanding overall environmental management program.

Directorate of Environmental Management

Mission

- Establish and implement environmental programs, systems and procedures to ensure compliance with federal, state and local laws and regulations and to minimize environmental risk and liabilities

Strength

- 76 people assigned (3 military and 73 civilian personnel)

Significant Facts

- Received four significant awards in 1992 and 1993
 - Secretary of Defense Environmental Quality Award (Best in Defense Department)
 - Gen. Thomas D. White Environmental Quality Award (Best in Air Force)
 - Gen. Thomas D. White Pollution Prevention and Recycling Award (Best in Air Force)
 - President's Council on Management Improvement Award

Discussion Points

- Reduced hazardous material acquisition costs by 75 percent (\$10.5 million annually); realized an additional \$20 million reduction in disposal costs
- Reduced the estimated cost of hazardous waste cleanup from \$550 million to \$289 million through innovative technology and contract management
- Revolutionized hazardous materials and hazardous waste management; innovations adopted Air Force-wide
- Meets regularly with local citizens and city governments (including outlying communities near the Utah Test and Training Range) to keep community informed
- Conducted an innovative study on the effects of aircraft noise on wildlife; results adopted by other services and international scientific community
- Reduced environmental Notices of Violation from 187 (in 1987) to 2 (in 1992) despite six-fold increase in regulators' inspection days

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**REGIONAL PROCESSING
CENTER**



Hill AFB's Information Processing Center, a 142,475 square foot facility, has been named one of the Defense Information System Agency's new MegaCenters.

Regional Processing Center

Mission

- Operates, maintains, and plans for communications, computer systems and navigational aids for the Ogden ALC, 388th Fighter Wing, Utah Test and Training Range and tenant organizations
- Manages the Standard Base Level Computer (SBLC) platform and its data connectivity providing services for all Air Force active-duty, Reserve and Air National Guard bases in the western United States

Strength

- 532 people assigned (136 military and 396 civilian personnel)

Significant Facts

- Designated a DOD MegaCenter for Information Processing
- Designated an Air Force Regional Processing Center for SBLC
- Provides backup capability for several DOD information systems including the Defense Finance and Accounting Service in Denver
- Presented the 1992 Northern Telecom's Switch Performance Award as "The Best Telephone Switch in the Air Force" for its world-class communications facilities

Discussion Points

- Selected as one of the top three Information Processing MegaCenters of the 44 DOD-designated centers
- Leads Air Force Materiel Command in the use of technology to improve efficiency in computer operations
- Assumed responsibility as a Regional Processing Center for 26 Air Force active-duty and Reserve bases in eight western states
- Tests and evaluates twice yearly the capability to backup the Defense Finance and Accounting Service computers in Denver
- Provides year-round backup for Hill AFB computer operations; serves as independent software development platform during remainder of the year

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EXPLOSIVES
ORDNANCE DISPOSAL



Destruction of "unserviceable" missile motor by
EOD squadron members at a thermal treatment unit
located at Utah Test and Training Range.

649th Explosive Ordnance Disposal Squadron

Mission

- Handles explosive disposal of ICBM and large missile motors, including the Peacekeeper, Minuteman, Trident, Poseidon and Titan 4 strap-on boosters for the Air Force, Navy and DOD contract sources
- Provides explosive disposal support to the Utah Test and Training Range for large scale (500,000 pounds and more) explosive detonations and propagation tests

Strength

- 68 people assigned (67 military and 1 civilian personnel)

Significant Facts

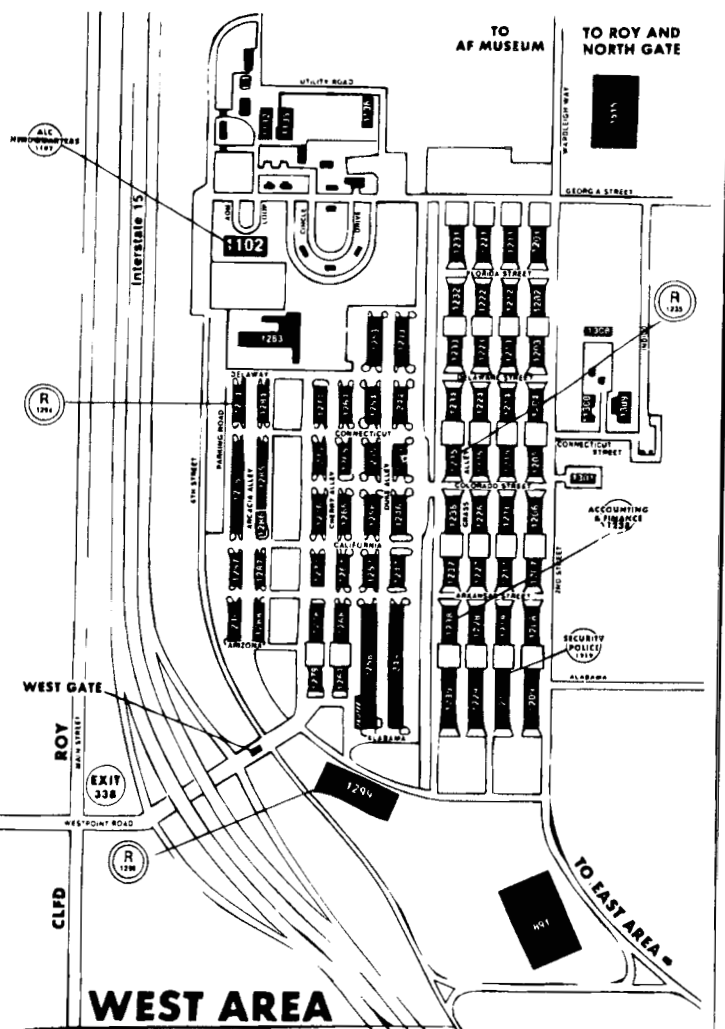
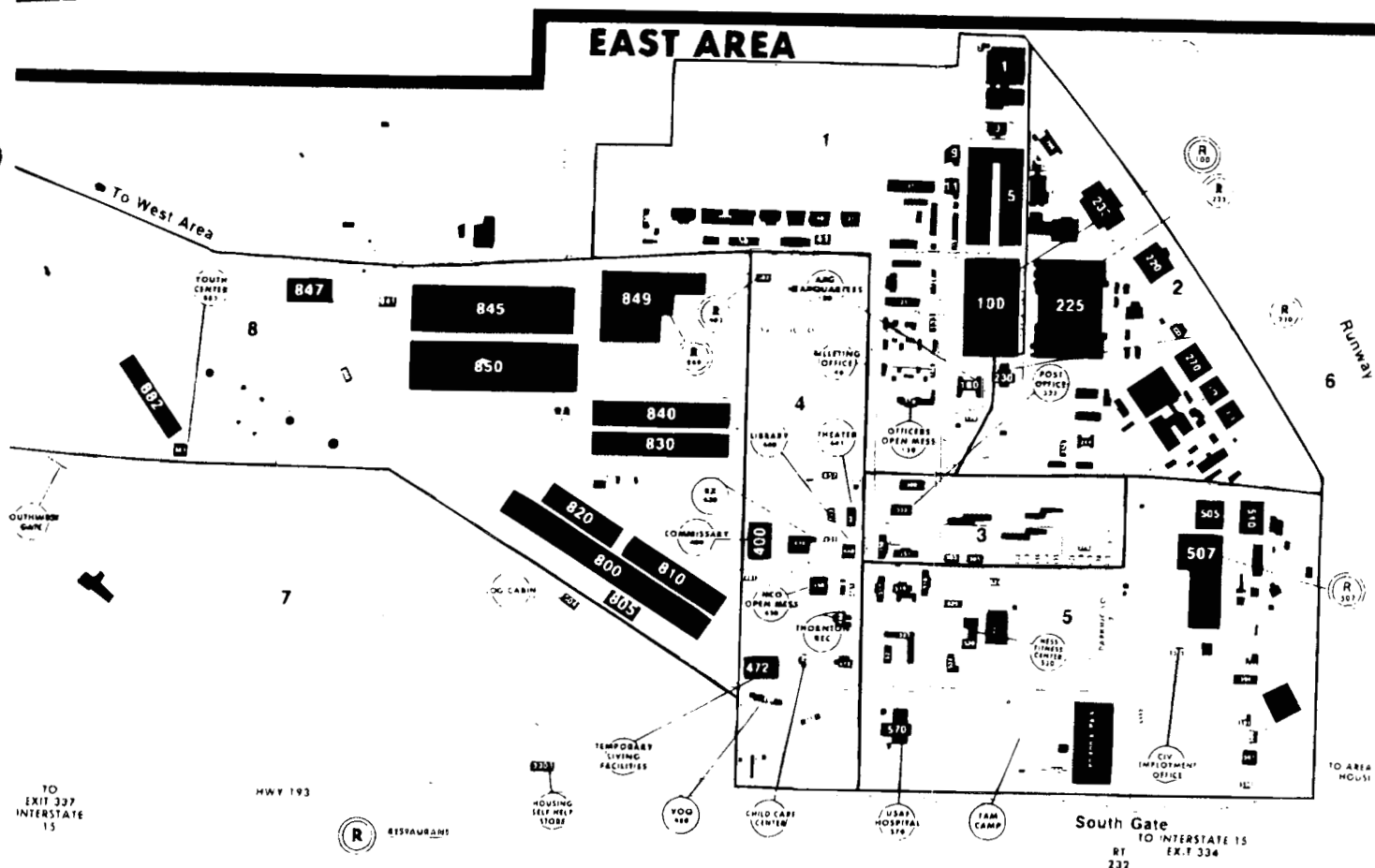
Utilizes the virtually unlimited explosive limits on the Utah Test and Training Range -- the only place in the continental United States for large scale missile disposal

- Disposed of 24 Minuteman, one Peacekeeper, one Titan 4 and several Poseidon missile motors in Fiscal Year 1992

Discussion Points

- Works side-by-side with Ogden ALC missile depot
 - Handles disposal of all unserviceable Air Force Intercontinental Ballistic Missile motors
 - Will contractually dispose of Navy Poseidon Sea Launched Ballistic Missiles in 1994
- Supports DOD contractors (Hercules and Thiokol), through a contract, with disposal near their manufacturing plants
- Obtained EPA approval rating for facilities to continue large scale explosive tests
 - Validates DOD explosive safety and storage criteria
 - Approved to conduct DOD and Joint Service explosive propagation tests
 - Have facilities in place to support Air Force-unique weapons tests
- Exists next to Ogden ALC missile depot, DOD contractors and disposal range as the most cost effective and safest way to eliminate interstate hazardous material handling

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DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF STAFF
200 ARMY PENTAGON
WASHINGTON DC 20310-0200



REPLY TO
ATTENTION OF

June 19, 1995

Mr. Edward A. Brown III
Army Team Leader
Defense Base Closure
Realignment Commission
1700 North More Street
Suite 1425
Arlington, VA 22209

Dear Mr. Brown:

This response is provided to your request dated June 15, 1995, concerning personnel status changes received by the Commission from community representatives at Letterkenny Army Depot.

We have reviewed the reduction in force information that you provided. Although the number of personnel impacted by the action is reported as 664 positions, the actual number of separation letters handed to Letterkenny personnel totaled 354. Regardless of the number, this reduction was initiated after DoD's BRAC announcement and supports our analysis on excess capacity/personnel at Letterkenny. The Army plans to continue its standard operating procedure of using approved and certified personnel data. No change in the COBRA analysis is warranted.

We have also reviewed the suggested changes regarding Central Pennsylvania Public Works and SIMA. The Army accounted for the 183 civilian personnel identified with the Central Pennsylvania Public Works by transferring them to Base X; that recommendation remains in effect. We agree that the SIMA is relocating to Rock Island, IL., as a result of a BRAC 91 decision. It was for this very reason that the Army eliminated the SIMA strength figures in its analysis for the BRAC 95 recommendation.

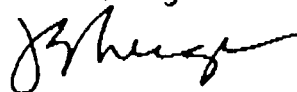
In coordination with the Army Materiel Command (AMC), it has been determined that additional workload will result in an increase of 150 personnel being transferred to Tobyhanna (increase from 300 to 450). The implementation plan, which is now being prepared, is expected to show that fewer personnel will be required for this transfer, perhaps as few as 226. But to be conservative, we have included the 450. Additionally, the change would result in 310 personnel being added to the contingent being enclaved at Letterkenny. It should be noted that both one-



time costs and projected savings changes are not significant. A revised COBRA is attached along with a comparison of the original and current figures.

Point of Contact for this action is Mr. Ron Hamner, (703) 693-0077.

I certify this is accurate to the best of my knowledge and belief.



JOHN B. NERGER

Director

The Army Basing Study

Attachment

Document Separator



DEPARTMENT OF THE ARMY

TOBYHANNA ARMY DEPOT
11 HAP ARNOLD BOULEVARD
TOBYHANNA, PENNSYLVANIA



June 16, 1995

BRAC Office

SUBJECT: Ground Communications-Electronics (GCE) Comparative Analysis

Ms. Ann Reese
Defense Base Closure and
Realignment Commission
1700 North Moore Street, Suite 1425
Arlington, Virginia 22209

Dear Ms. Reese:

By letter dated May 26, 1995, the Sacramento Air Logistics Center made representations regarding a Ground Communications-Electronics (GCE) analysis. This response is respectfully submitted to clarify the record.

The Joint Cross Service Group for Depot Maintenance (JCSG-DM) Functional Value Analysis (Analysis) is Simply an Indicator of the Type of Work Performed.

The key distinction in the Analysis is that the Air Force and the Army adopted different interpretations of the data requests. The Functional Values Summary Worksheets show that the Air Force consistently identified a large portion of the commodity workloads as "core." The Army, on the other hand, interpreted the data requests conservatively; accordingly, the Army identified less work as "core." This difference is an inherent advantage in the scoring process.

In fact, the Army and the Air Force did not even agree on the workload categories. Categorizing the workload for the Joint Service data call differed for each service and was a point of contention within each Service. Even McClellan makes this apparent in their letter of May 26, noting that "our 'electronic warfare' work is under 'radar' stock class, therefore, not [sic] comparable to the JCSG definition."

Furthermore, the Analysis compiled data on the basis of categories of work performed, but did not reflect the relative importance of capabilities. As a result, the numerical values stated for McClellan are higher, even though Tobyhanna performs more communications-electronics work.

An example of this distortion is illustrative. The Functional Value Worksheet for the Radio Commodity, Section I.a., shows that Tobyhanna performs over three times as much core radio work (695,000 workhours) as McClellan (177,156 workhours). Under the scoring methodology, however, McClellan's score of seven points is only two points lower than Tobyhanna's score. These scores do not accurately represent the value of Tobyhanna as the major maintainer of GCE equipment.

This distortion is even more pronounced in light of the value given in relation to the total scores. Given that core workload accounted for 30 total points for the radio commodity, for example, the Air Force gained an inherent advantage with a score of seven as compared to Tobyhanna's score of nine. To show the relative importance of workload size, the scores should have been weighted.

The Functional Value Worksheet for Satellite Commodity is particularly instructive. Tobyhanna performs more satellite workload, possesses more unique satellite facilities, has more skilled technicians than any depot in the Department of Defense (DOD), and, in fact, is the DOD Center of Technical Excellence (CTX) for Ground Satellite Communications Systems. Yet, Tobyhanna received zero points for core workload and only 19 total points of a possible 100. McClellan, on the other hand, received 65.5 points.

In summary, the Analysis does not accurately reflect the relative importance of any depot, but rather, merely shows the type of workload performed by that depot.

The Functional Value Analysis is Significantly Subjective.

The Functional Values Summary Worksheets, Sections II and III, assessed unique/peculiar core workloads on a subjective basis; the services were simply asked to determine if each possessed unique or peculiar workload or facilities. Again, the Army adopted an extremely conservative interpretation of these inquiries. As a result, the summations of the scores are subjective and show only the relative importance of the workload or facilities.

The Functional Value Analysis is Not Comprehensive.

Tobyhanna received no score for the Support Equipment Software workload, no score for the Cryptological workload and a nominal score for the Tactical System Software workload. Yet, these workloads are a major part of the Tobyhanna mission and of the DOD workload at issue.

Tobyhanna has Significant Capabilities in GCE That Are Not Reflected in the McClellan Analysis.

Tobyhanna has extraordinary capability in the satellite commodity and is the CTX for the Defense Satellite Communications System (DSCS). Tobyhanna's mission includes integration, design, fabrication, and support of over 70 unique equipment racks, five types of operations and support vans, 10 "special" integrated earth terminal systems, repair and overhaul of ground terminals, and over 2100 unique secondary items as well as technical assistance and life cycle support to 112 sites located worldwide. Support is given to both the Digital Communications Satellite Subsystem and the DSCS Operations Control System. This is a multi-service responsibility, providing capability to the Air Force, Navy and other customers. A new facility complex at Tobyhanna is dedicated to this high-tech satellite mission.

Tobyhanna has extensive radar test facilities capable of handling the vast majority of DOD radar systems. Tobyhanna currently has many dedicated facilities for the overhaul and repair of radar systems including a large antenna pattern range, a live target range, and anechoic chambers giving capability to test all radar parametrics. Tobyhanna is also in the process of transitioning phased array radar into its current profile, providing full capability in radar technologies. Furthermore, Tobyhanna currently has the capability to meet the DOD requirement for "high bay" radar work. High bay areas are located throughout the depot, and include the newly built Tactical End Item Repair Facility designed for this large item, radar-type workload. The Commissioners and Staff Members toured some of these high bay areas during their visit of June 1, 1995.

Tobyhanna presently supports a variety of battlefield sensors and does a significant portion of this work for the other services.

Tobyhanna is also a software center for the Army and is a CTX for Test Program Set development and maintenance. In fact, a whole organizational division at Tobyhanna as well as extensive computer facilities are dedicated to this high-tech mission.

Ground Communications-Electronics Capabilities Exist at Tobyhanna That Do Not Exist at McClellan.

Tobyhanna possesses a cryptological capability that includes specialized facilities and security requirements. There is also a satellite mission complex which includes a staging facility, a prototype area, a systems integration zone, training facilities, and an antenna support area. Tobyhanna has the DOD's only GCE production environmental stress screening facility. In addition,

a special work site supports the Signal Intelligence mission. In total, Tobyhanna possesses over 40 specialized GCE facilities.

Under Any Method of Cost Comparison, Tobyhanna Possesses a Significant Cost Advantage.

McClellan reports a "budgeted labor hour cost" of \$65.27. The source of this number is the GO35A-HF3-MM-8BV dated February of 1994 "for GCE workload only." No published or audited document supports McClellan's cost comparison. To the contrary, published, auditable labor hour costs have consistently shown that Tobyhanna has a significant advantage over McClellan.

Sales/Bid Rates.

A comparison of the sales rates published by the U.S. Air Force Materiel Command and the bid rates published by the U.S. Army Depot System Command for the GCE commodity shows the following:

<u>Sales/Bid Rates</u>	<u>Tobyhanna</u>	<u>McClellan</u>
FY96	\$59.95	\$88.35
FY95	\$80.75	\$93.32
FY94	\$63.89	\$73.13
FY93	\$51.24	\$73.83
FY92	\$55.04	\$64.53

Defense Maintenance Operations Indicators (DMOI).

The DOD DMOI Report for the 1st Quarter FY93 through 4th Quarter FY94 shows the following:

	<u>Tobyhanna</u>	<u>McClellan</u>
FY93	\$59.33	\$82.03
FY94	\$63.37	\$83.60
FY93 (without material)	\$47.22	\$68.25
FY94 (without material)	\$53.26	\$59.14

The above indicators measure the total actual cost in comparison to total actual man-hours.

Wage Grade Rates.

A comparison of the rates for a Wage Grade (WG) 11, Step 3, employee shows that Tobyhanna is significantly more cost-effective.

	<u>Tobyhanna</u>	<u>McClellan</u>
October 1, 1994	\$13.10	\$17.34

In closing, please be advised that McClellan's reliance upon the Functional Value Analysis is misplaced. The JCSG rejected the Analysis because it did not meet the goal of eliminating excess capacity. In short, the JCSG rejected it; I respectfully submit that you should do the same.

I appreciate your assistance and cooperation.

Sincerely,



Robert D. Haas
Chief, BRAC Team

Document Separator

**STATEMENT BY
THE HONORABLE TOGO D. WEST, JR
SECRETARY OF THE ARMY
BEFORE THE
DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION
JUNE 14, 1995
WASHINGTON, D.C.**

INTRODUCTION

Good morning, Mr. Chairman and members of the Commission. General Sullivan and I appreciate this final opportunity to discuss your alternatives to our closure and realignment recommendations as well as address your questions regarding the Army's original list. We hope our comments will be helpful as you begin your final deliberations.

To start, it is worth noting that the Army's recommendations are the product of over a year's worth of painstaking analysis, informed military judgment and comprehensive oversight and review. As I stated in earlier testimony, our decisions were not arrived at easily nor were they made in haste. They build upon the work done by the three previous Commissions and leave us with the infrastructure needed to keep our Army trained and ready into the 21st century.

Yet we understand it is the Commission's duty and obligation to consider making changes to the Secretary of Defense's list and, if supported by persuasive analysis and compelling justification, add more installations to that list. We would like to offer our assessment of these possible additions, considering both the financial and operational implications on our plans to support the national military strategy and posture the Army for the 21st century. I believe the Army has cooperated and assisted when asked to review and analyze closing or realigning installations in the manner suggested by the Commission at the hearing on May 10th.

ASSESSMENT OF PROPOSED ADDITIONS TO BRAC LIST

Other than Fort Holabird, MD, the Army does not see any merit in adding another installation to the original list. After Defense Investigative Service departs from Fort Holabird, we have no further use of the property. The other alternatives are a different matter:

Oakland Army Base. The Army studied the feasibility of closing the ports at both Bayonne and Oakland and concluded the loss of Oakland represents an unacceptable operational risk. The Army needs this critical port facility to support the rapid deployment of equipment during peace and war. Oakland is essential for the

deployment of our CONUS-based forces to respond to any national security threats that could emerge in the Pacific region. Its closure would leave the Army without a port facility on the west coast. The financial savings simply do not justify the risk.

Tobyhanna Depot. The Army has made the hard choices to divest itself of excess depot maintenance capacity and consolidate workload from five to three depots (ground, air and communication/electronics). DoD's recommendations on Letterkenny and Red River provide the optimum savings while supporting our core wartime requirements. They earned the support of the Secretary of Defense's Joint Cross Service Group. Tobyhanna is our center of excellence for communications and electronics. Closing it would directly contradict the Army's own military value assessment, which ranks Tobyhanna as the number one Army depot. It is the newest depot and least costly to operate. Our stationing strategy for the future calls for the retention of an electronics-oriented maintenance depot in order to meet the battlefield demands of the future. A fully digitized Army prepared to exploit information-age technology requires a modern depot capable of servicing and sustaining equipment. The cost to close Tobyhanna would be three times as great as realigning Letterkenny, DoD's current recommendation. Moreover, the savings would only be 25% as much over 20 years. Tobyhanna is an installation the Army must retain.

Letterkenny Depot. DoD's proposal to realign Letterkenny preserves DoD's missile consolidation effort, achieves substantial savings for a reasonable investment and reduces the overcapacity in ground equipment maintenance in the depot system. Alternatives to move tactical missile maintenance to Hill AFB would incur costs anywhere from four to nine times greater and produce significantly less in the way of savings. Extensive facility upgrades would be necessary to support tactical missile maintenance at Hill AFB. We do not see this as more feasible or desirable than the Army's and DoD's recommendation.

Space and Strategic Defense Command. The Army made a concerted effort to move activities out of leased space, when it was cost effective to do so. Our own analysis shows that moving Space and Strategic Defense Command to a nearby installation would have significant costs and take over 30 years to pay off. It would also disrupt preexisting plans to move SSDC along with the Program Executive Office - Missile Defense onto Redstone Arsenal at a later date. A decision to relocate Space and Strategic Defense Command from leased space would be a poor substitute for terminating the lease and disestablishing and redistributing the assets of Aviation and Troop Support Command. If unable to execute this plan as recommended, the Army will forfeit substantial savings from reductions in both management and facility overhead and forego the operational advantages of aligning its functions with related research and development centers at other locations.

Summary. Making the above four changes to the original list would cost

approximately \$200M more and save up to \$45M less than our original list and also incur greater operational risk. Investing in alternative BRAC recommendations that produce fewer savings would be at the expense of readiness and force modernization. We urge you to weigh the Army's assessment very carefully and hope you agree with us that these changes would be undesirable, unwarranted and unwise.

ORIGINAL BRAC RECOMMENDATIONS

During the past few months, you have made extensive visits to our installations to observe their operations and listen to the sincere voices of the local communities and elected representatives. The Army has been listening, too. Their strong convictions and fervent opposition have our admiration. It is very moving to witness the great pride our friends and neighbors have in the Army and our installations. Nevertheless, with little exception, we are unaware of any compelling arguments that would cause us to change our original military judgment. However, we have learned new information which makes one realignment and two closures no longer viable. We have provided our recommendations to the Office of Secretary of Defense.

Dugway Proving Ground. The crux of our recommendation to close Dugway centered on the relocation of the chemical/biological testing elements to Aberdeen Proving Ground and smoke/obscurants testing elements to Yuma Proving Ground. Permit restrictions preclude conducting testing at these two sites, thereby obviating the relocation of the testing elements. Efforts to transfer English Village to the Utah National Guard were previously underway prior to the development of the BRAC 95 recommendation and would therefore require no action by the Commission to effect its disposal.

Caven Point, NJ, U.S. Army Reserve Center. The Army recommended closing and relocating this facility to Fort Hamilton, NY. While planning for implementation, it has been discovered that new construction (\$10.5M) is required to execute the move. The minor savings (\$137,000 annually) do not justify this expense. Furthermore, this new facility requires a larger area than is available for construction at Fort Hamilton.

Valley Grove, WV, Area Maintenance Support Activity. The Army recommended closing and relocating this facility to Kelly Support Center, PA. We have since learned that Congress added a construction project (\$6.8M) to build a new maintenance shop at the Wheeling-Ohio County Airport. The project is now underway, obviating the need to move to a new facility at Kelly Support Center.

We have also received new information which warrants minor modifications to several other recommendations:

Fitzsimons Medical Center, CO. The Army recommended closing this facility

and relocating its Medical Equipment and Optical School and Optical Fabrication Laboratory to Fort Sam Houston. We recently learned that the Assistant Secretary of Defense (Health Affairs) is evaluating several joint service training consolidation alternatives which might show it is more cost-effective to relocate the school elsewhere. Modifying the language of the recommendation so it does not specify the gaining location is desirable.

Sierra Army Depot, CA. The Army recommended realigning this facility, eliminating the conventional ammunition mission and retaining an enclave for operational project stocks. We have learned that we are unable to demilitarize all of the ammunition by 2001, necessitating the retention of some storage.

Bayonne Military Ocean Terminal. The Army recommended closing this facility, relocating the Eastern Area Command Headquarters and 1301st Major Port Command to Fort Monmouth and retaining an enclave for Navy tenants. The Army's Military Traffic Management Command is considering an internal reorganization which could result in the merger of their area commands at another eastern installation besides Fort Monmouth. The Navy has indicated a preference for moving their activities. Modifying the language of the recommendation so it does not specify the gaining location or retention of an enclave is desirable.

We understand that the Commission may have questions for the Army in a number of areas, including the following:

Leased Facilities. The Army performed a military value analysis on leased facilities and concluded they all had low military value. We provided a detailed description of our assessment regarding the leased facility that houses Aviation and Troop Support Command in a letter to the Commission dated April 14, 1995. Our determination that this leased facility had low military value, coupled with the resulting financial savings and operational advantages, formed the basis for our recommendation.

Depots. The Army's recommendations to close Red River Depot and realign Letterkenny eliminate excess capacity and achieve significant savings. A single ground combat vehicle depot (Anniston) supports our peacetime requirements and can meet surge requirements in the event there are two major regional contingencies.

Family Housing. Divestiture of family housing quarters reduces burdensome maintenance and repair costs and is a major part of the Army's overall housing strategy. The Army is closing housing areas that support small garrison and headquarters units and keeping those that support major troop concentrations. We must balance overall quality of life for the soldier with readiness and modernization of the U.S. Army.

Fort McClellan. We have furnished the environmental permits for Fort Leonard Wood in support of the training missions transferring from Fort McClellan. The Army is confident it can accomplish its smoke training mission while at the same time exercising good environmental stewardship.

CONCLUSION

The Army's BRAC recommendations make it possible to stride confidently toward the 21st century unburdened by excess infrastructure. We continue to believe that our original recommendations are the right choices for the Army and for the nation. The Army must be allowed to divest of unnecessary infrastructure during this last round of BRAC or we run the risk of having scarce funds drain away from programs with higher priorities. We count on being able to reinvest these savings in the areas of equipment modernization, quality of life and training -- important components of current and future readiness.

Mr. Chairman, GEN Sullivan and I will be happy to answer your questions.

THE DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION

EXECUTIVE CORRESPONDENCE TRACKING SYSTEM (ECTS) # 950616-17

FROM: JONES, RICHARD TITLE: VICE PRESIDENT ORGANIZATION: SCRANTON CHAMBER INSTALLATION (S) DISCUSSED: TOBYHANNA ARMY DEPOT	TO: DIXON TITLE: CHAIRMAN ORGANIZATION: DBCRC
---	--

OFFICE OF THE CHAIRMAN	FYI	ACTION	INIT	COMMISSION MEMBERS	FYI	ACTION	INIT
CHAIRMAN DIXON				COMMISSIONER CORNELLA			
STAFF DIRECTOR	✓			COMMISSIONER COX			
EXECUTIVE DIRECTOR	✓			COMMISSIONER DAVIS			
GENERAL COUNSEL	✓			COMMISSIONER KLING			
MILITARY EXECUTIVE				COMMISSIONER MONTOYA			
				COMMISSIONER ROBLES			
DIR./CONGRESSIONAL LIAISON		Ⓢ		COMMISSIONER STEELE			
DIR./COMMUNICATIONS				REVIEW AND ANALYSIS			
				DIRECTOR OF R & A	✓		
EXECUTIVE SECRETARIAT				ARMY TEAM LEADER	✓		
				NAVY TEAM LEADER			
DIRECTOR OF ADMINISTRATION				AIR FORCE TEAM LEADER			
CHIEF FINANCIAL OFFICER				INTERAGENCY TEAM LEADER	✓		
DIRECTOR OF TRAVEL				CROSS SERVICE TEAM LEADER	✓		
DIR./INFORMATION SERVICES							

TYPE OF ACTION REQUIRED

Ⓢ Prepare Reply for Chairman's Signature	Prepare Reply for Commissioner's Signature
Prepare Reply for Staff Director's Signature	Prepare Direct Response
ACTION: Offer Comments and/or Suggestions	✓ FYI

Subject/Remarks:

FORWARDING RESOLUTIONS IN SUPPORT OF DEPOT.

Due Date: 950623	Routing Date: 950616	Date Originated: 950605	Mail Date:
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June 5, 1995

Honorable Alan J. Dixon, Chairman & BRAC Commissioners
Defense Base Closure & Re-Alignment Commission
1700 North Moore Street, Suite 1425
Arlington, Virginia 22209

Please refer to this number
when responding 95061617

Dear Senator Dixon & Commissioners:

On behalf of the nearly 250,000 residents of Lackawanna County, please find enclosed thirty-five (35) resolutions adopted in support of the Tobyhanna Army Depot by the County Commissioners of Lackawanna County, the City Council of The City of Scranton, dozens of local municipalities, as well as numerous County School Districts, all urging the BRAC to "Keep the Best"! Each of these resolutions support the mission of the Tobyhanna Army Depot, and its nearly 3,600 employees.

You have seen the outpouring of community support demonstrated on behalf of our region's largest employer, the Tobyhanna Army Depot, both here, on June 1, 1995, as well as in Boston, at the BRAC Hearings, this past Saturday, June 3, 1995. Undoubtedly, you have seen first-hand (and heard at the BRAC Hearing) that closure of the Department of Defense's **most cost-effective and efficient maintenance facility** does not make military, or economic, sense. The Tobyhanna Army Depot is specifically designed to perform a high-tech electronics mission, a mission they have met for forty years.

After a thorough review of all of the facts and testimony, we know that you, and your fellow commissioners, will make the right decision, in terms of our tax dollars and military preparedness, and **retain the Tobyhanna Army Depot as the Army's highest-rated depot and the Department of Defense's most cost-effective and efficient maintenance facility!** Thank you, and God Bless America.

Sincerely,

A handwritten signature in cursive script, reading "Richard M. Jones", is written over the typed name.

Richard M. Jones, Vice-President
Community Development

cc: Austin J. Burke, President, Greater Scranton Chamber of Commerce
Anna Cervenak, Chair, "Keep the Best" Task Force, c/o EDCNP

THE DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION

EXECUTIVE CORRESPONDENCE TRACKING SYSTEM (ECTS) #

950614-23

FROM: MELLOW, ROBERT J.	TO: KLING, S. LEE.
TITLE: DEMOCRATIC LEADER	TITLE: COMMISSIONER
ORGANIZATION: SENATE OF PENN.	ORGANIZATION: DBCRC
INSTALLATION (S) DISCUSSED: TOBWHANNA ARMY DEPT	

OFFICE OF THE CHAIRMAN	FYI	ACTION	INIT	COMMISSION MEMBERS	FYI	ACTION	INIT
CHAIRMAN DEXON				COMMISSIONER CORNELLA			
STAFF DIRECTOR	✓			COMMISSIONER COX			
EXECUTIVE DIRECTOR	✓			COMMISSIONER DAVIS			
GENERAL COUNSEL	✓			COMMISSIONER KLING	✓		
MILITARY EXECUTIVE				COMMISSIONER MONTOYA			
				COMMISSIONER ROBLES			
DIR./CONGRESSIONAL LIAISON		✓		COMMISSIONER STEELE			
DIR./COMMUNICATIONS				REVIEW AND ANALYSIS			
				DIRECTOR OF R & A	✓		
EXECUTIVE SECRETARIAT				ARMY TEAM LEADER	✓		
				NAVY TEAM LEADER			
DIRECTOR OF ADMINISTRATION				AIR FORCE TEAM LEADER			
CHIEF FINANCIAL OFFICER				INTERAGENCY TEAM LEADER	✓		
DIRECTOR OF TRAVEL				CROSS SERVICE TEAM LEADER		X	
DIR./INFORMATION SERVICES							

TYPE OF ACTION REQUIRED

✓	Prepare Reply for Chairman's Signature		Prepare Reply for Commissioner's Signature
	Prepare Reply for Staff Director's Signature		Prepare Direct Response
X	ACTION: Offer Comments and/or Suggestions	✓	FYI

Subject/Remarks:

LETTER OF SUPPORT.

Due Date: 950619 Routing Date: 950614 Date Originated: 950612 Mail Date:

The Democratic Leader

22ND DISTRICT
ROBERT J. MELLOW
SENATE BOX 203022
THE STATE CAPITOL
HARRISBURG, PA 17120-3022
PHONE: (717) 787-6481
FAX: (717) 783-5198

524 MAIN STREET
PECKVILLE, PA 18452
PHONE: (717) 489-0336
FAX: (717) 963-3170

SCRANTON LIFE BUILDING
SCRANTON, PA 18503
PHONE: (717) 346-5721



Senate of Pennsylvania

June 12, 1995

COMMITTEES

RULES AND EXECUTIVE NOMINATIONS,
MINORITY CHAIRMAN
ETHICS, MINORITY CHAIRMAN
APPROPRIATIONS

Transmitted to the Senate
with response 950614-23

S. Lee Kling, Commissioner
Defense Base Closure
and Realignment Commission
1700 North Moore Street
Suite 1425
Arlington, VA 22209

Dear Commissioner Kling:

The May 10, 1995 decision by members of the Base Closure and Realignment Commission to review Tobyhanna Army Depot for closure and transfer its work to Letterkenny Army Depot came as disturbing news to all residents of northeastern Pennsylvania. The proposal lacks both common sense and merit.

Tobyhanna, for example, was ranked number one in military value by the Army in 1993 and 1995. It has the lowest business costs of all DOD depots; has recorded a \$13 million gain for fiscal years 1990-1994, and is the Army's newest and most modern depot.

Tobyhanna Army Depot has the largest concentration of electronics skills in DOD and is the Center of Excellence for ground communications/electronics equipment, which is critical to the support of Force XXI and the Digitized Battlefield. This depot has more than 40 specialized electronics facilities and has been cited by Coopers-Lybrand as by far the best of the six DOD depots reviewed.

MG (Retired) James R. Klugh, DUSD (Logistics), calls Tobyhanna the "most cost effective and efficient depot in DOD." Under Secretary of the Army Joe Reeder and General John H. Tilelli, Jr., Vice Chief of Staff, U.S. Army, stated in a recent letter that "By any and all measures, Tobyhanna is an installation we must retain."

The DOD BRAC 1995 recommendation was to transfer the Tactical Missile maintenance workload (electronic -- guidance and control systems) to Tobyhanna Army Depot which repairs and maintains many similar systems. The move would be consistent with the intent of BRAC 93 and would not require military construction.

The transfer of the workload to Tobyhanna, which has an outstanding work force, would result in a significant steady state savings and is endorsed by the Joint Cross Service Group-Depot Maintenance.

The opportunity exists to interservice all DOD Ground Communications-Electronics work at Tobyhanna for a number of reasons, including the following:

- Tobyhanna has the required capacity.
- Military construction projects would not be required.
- The consolidation would save DOD \$40-\$60 million yearly.
- Interservicing Ground-Communications Electronics to Tobyhanna was a proposal during BRAC 93 and also recommended by other DOD studies.

I sincerely hope that the BRAC Commissioners will closely review all the facts before making a final decision that will affect the lives of nearly 3,800 workers at Tobyhanna Army Depot. Once the facts are scrutinized, I am certain the BRAC Commissioners will agree that Tobyhanna Army Depot is the best and vote to "Keep the Best."

Sincerely,



ROBERT J. MELLOW
The Democratic Leader

RJM/js

Document Separator



DEPARTMENT OF THE ARMY

TOBYHANNA ARMY DEPOT
11 HAP ARNOLD BOULEVARD
TOBYHANNA, PENNSYLVANIA
18466-5081



SDSTO-PE (1b)

MEMORANDUM FOR Commander, U.S. Army Armament, Munitions and
Chemical Command, ATTN: AMSMC-AE
(Mr. Alan G. Wilson, IOC BRAC 95 Program
Manager), Rock Island, IL 61299-6000

SUBJECT: BRAC-95 Proposed Transition of Depot Maintenance
Workload

1. Reference memorandum, Headquarters, U.S. Army Depot System Command, AMSDS-MN-A, 5 May 1995, subject as above.
2. Tobyhanna Army Depot conducted a detailed review of the spaces required to implement the BRAC 95 recommendations. Based on this workload analysis we are confident that at the most, 226 spaces are required to perform the tactical missile workload. The overhead impact is minimal as our overhead structures are in place for production, planning and control, material management, production engineering support, etc.
3. Specifically our analysis involved a two pronged approach. The June 94 OPS29 was reviewed to determine the number of spaces required to accomplish the transition of the missile workload from Letterkenny Army Depot to Tobyhanna Army Depot. The second aspect of the analysis involved examining the Outyear Maintenance File from the DESCOM MFM data base. An analysis of our FY95 space allocation along with the current and projected space requirements reveals additional spaces will be available to work on the missile workload, thereby lowering the spaces required to perform this work.
4. The above man-year requirement of 226, derived from our analysis, is the upper limit. Current indications are that missile workload projections are optimistic and, in reality, could result in a reduction of the 226 man-years. In addition, based on our BRAC experiences from prior years, it is unlikely that a gaining installation will receive the total workload originally designated. For example, in BRAC 88 Tobyhanna Army Depot obtained the COMSEC Mission and received only 50 percent of the original workload designated for transfer. Similarly, we received significantly less workload from the Sacramento Army Depot competition than was originally presented during the BRAC 91 process. Based on this experience it is feasible for Tobyhanna to pick up the missile workload for much less than the 226 man-years our analysis has revealed.

DSIU-PE

SUBJECT: BRAC-95 Proposed Transition of Depot Maintenance
Workload

5. Points of contact are Jacob P. Kodnovich, DSN 795-7112, or
Robert Haas, DSN 795-6335.

FOR THE COMMANDER:

JERRY YAREMKO
Director of Resource Management

Document Separator

***TO: Glenn Knoepfle
FAX: (703) 696-0550***

***FROM: Jake Kodnovich,
Tobyhanna Army Depot
COMM (717) 895-7112,
DSN 795-7112***

(22 Pages)

*Tobyhanna's Preliminary BRAC '95
Tactical Missile Consolidation Data*

TACTICAL MISSILE CONSOLIDATION PLAN

I. FACILITY RENOVATION - \$2.8M

See enclosed DD 1391, Military Construction Project Data. This is based on 5% contingency - 10% requires \$0.2M extra.

II. TRAINING - \$1.0M

Estimate bounds are \$0.5M to \$1.5M.

Initially identified training included basic electronics, technical requirements not needed at TOAD, e.g., Basic Electronics, PACE Low Temperature Soldering, Basic Computer Fundamentals, Initial Solid Stated/Integrated Circuit Training, etc.

Estimate is a result of analysis of training plans and technical data initially submitted.

Needed training includes touch-up training in LASERS, optics, and other related mission system specific needs.

III. EQUIPMENT TRANSFER - \$1.0M

Estimated bounds are \$0.8 to \$1.6M.

Analysis will be complete on 01 July 1995.

Also enclosed are the latest charts from the Letterkenny transition plan. We are working with them and please note that we feel the transition will be much quicker than currently listed.

ARMY

96

31 MAR 1995

31 MAR 1995

Tobyhanna Army Depot
Pennsylvania

CONV. MOD
RENOVATE & CONVERT FACILITIES FOR MISS

212 10

45926

2,800

PRIMARY FACILITY

Guided Missile Maintenance Facil

LS

--

--

2,500

(2,500)

SUPPORTING FACILITIES

ESTIMATED CONTRACT COST	2,500
CONTINGENCY PERCENT (5.00%)	125
SUBTOTAL	2,625
SUPERVISION, INSPECTION & OVERHEAD (6.00%)	158
TOTAL REQUEST	2,783
TOTAL REQUEST (ROUNDED)	2,800
INSTALLED EQUIPMENT-OTHER APPROPRIATIONS	(0)

ALTER AND RENOVATE DEPOT MAINTENANCE AND WAREHOUSE FACILITIES TO PROVIDE
SPECIALIZED DEPOT MISSILE MAINTENANCE FACILITIES. PROJECT INCLUDE ELECTRICAL
UPGRADES, AIR CONDITIONING, LIGHTING, CEILINGS AND FLOOR UPGRADES.

11. REQUIREMENT:	NONE	ADEQUATE:	NONE	SUBSTANDARD:	NONE
PROJECT:					

ALTER AND RENOVATE DEPOT MAINTENANCE AND WAREHOUSE FACILITIES TO ACCOMMODATE
MISSILE MAINTENANCE FUNCTIONS.

REQUIREMENT:

PROJECT IS REQUIRED TO SUPPORT MISSILE MAINTENANCE MISSION TRANSFER.

CURRENT SITUATION:

THE TACTICAL MISSILE MISSION IS CURRENTLY ACCOMPLISHED AT LEAD AND IS TO BE
TRANSFERRED TO TOAD AS A RESULT OF BRAC 95. TOAD CAN ACCEPT THIS WORKLOAD BY
RENOVATING AND CONVERTING EXISTING FACILITIES.

96

31 MAR 1995

ARMY

31 MAR 1995

Tobyhanna Army Depot
Pennsylvania

CONV, MOD
RENOVATE & CONVERT FACILITIES FOR MISSILE MAINTENAN

45926

IMPACT IF NOT PROVIDED.
IF THIS PROJECT IS NOT APPROVED TOAD CAN NOT PROPERLY SUPPORT THE TACTICAL
MISSILE REPAIR MISSION.

MICHAEL A. LINDQUIST
COLONEL
COMMANDING

ESTIMATED CONSTRUCTION START:	SEP 1996
ESTIMATED MIDPOINT OF CONSTRUCTION:	FEB 1997
ESTIMATED CONSTRUCTION COMPLETION:	AUG 1997

INDEX: 2032
INDEX: 2056
INDEX: 2087

REFERENCE 1: 1995 R.S. MEANS BUILDING CONSTRUCTION CAT DATA

② SUSPENDED ACOUSTICAL CEILING

page 240 item 095 106 0810

\$ 2.12/SF

③ ACOUSTICAL INSULATION

page 240 item 095 304 0960

\$.64/SF

④ STRUCTURAL SUPPORT FOR DUCTWORK (A/C)

REFERENCE 2: BLOS, BAY 1 IMML PROJECT (Summary Page 1)

$$14,400 \text{ SF} / 120,030 = \$ 8.33/\text{SF}$$

⑤ RECESSED ELECTRICAL FIXTURES

* FLOURESENT, TRIGGER, RECESSED IN GRID, RS Ballast

REFERENCE 3: 1995 R.S. MEANS ELECTRICAL COST DATA

page 272, BO F.C.

SEC 9.2-213 0320

\$ 6.32/SF *

* USE SAME COST for non-recessed to allow for support system

* H.I.D

METAL HALIDE

References: 1995 MEANS ELECTRICAL COST DATA

SECTION 9.2-233 0400

#3.10/SF

(E) FLOORING - $\frac{1}{8}$ " VLT
 Reference 1 - PAGE 244
 SEC 096 001 7350

#1.64/SF

(F) TRANSFORMER
 Reference 3 : 164 100 120 5650

#35,200

(G) Interior Partitions
 4" WTL FRAMING
 FIBERGLASS INSULATION
 $\frac{5}{8}$ " DRY WALL TAPED both Sides

Reference 4 : 1995 MEANS Interior Cost DATA
 Page 306 G.1-580

0180	Framing	2.35
0780	DRYwall	1.06
0880	INSUL	.44
0960	TAPING	.39

\$4.24/SF wall
 .28/SF
\$1.40/SF

Drywall Painting 099 224 1846

Masonry Painting 099 224 2800

TUFF WALL
 COVE BASE

.50/SF
 .30/SF

Interior Pwr and Distribution

(H)

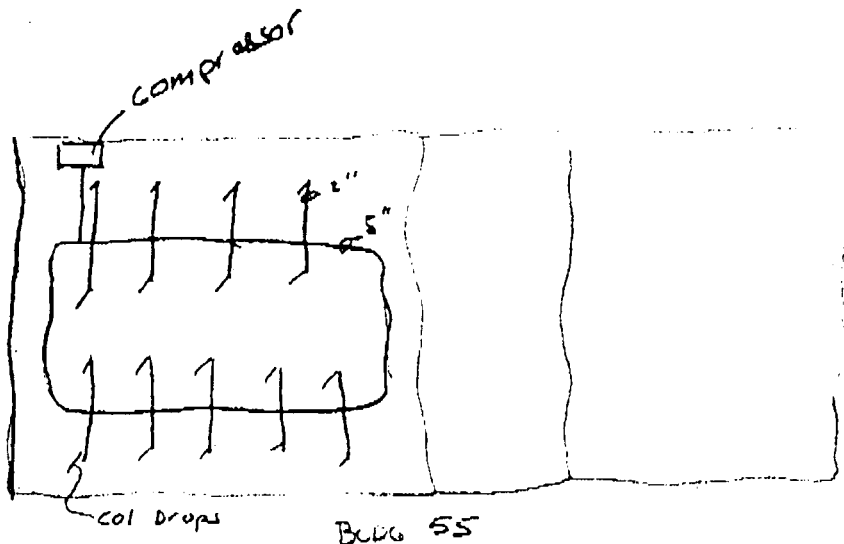
Reference 1995 means Electrical Cost Data
Page 261

Assume Facility will have similar electrical capabilities to
- Manufacturing (3 Types) for Devices, Equipment Connections and
Basic materials

Devices - .22
Equipment Connections - 1.00
Basic Materials - 2.00
\$3.22/sf

(I)

Bldg COMPRESSED AIR



Bldg 55

Ref 1995 means mech'l.

Page 106-151701 - 5" Dist pipe - $(320 \times 2) + 130(2) = 900 \text{ Lin ft.} \times 48 = 43,200$

- 2" Dist pipe - $21(65) = 1365 \text{ Lin ft.} \times 14.55 = 19,861$

- 1" Drops - $21(15) = 315 \text{ ft} \times 9.15 = 2,882$

Disconnects & PRVs = $21 \times 100 = 2,100$

Compressor = 75 HP w/ Receiver, Dryer = 30,000

(J)

Air Cond. Training

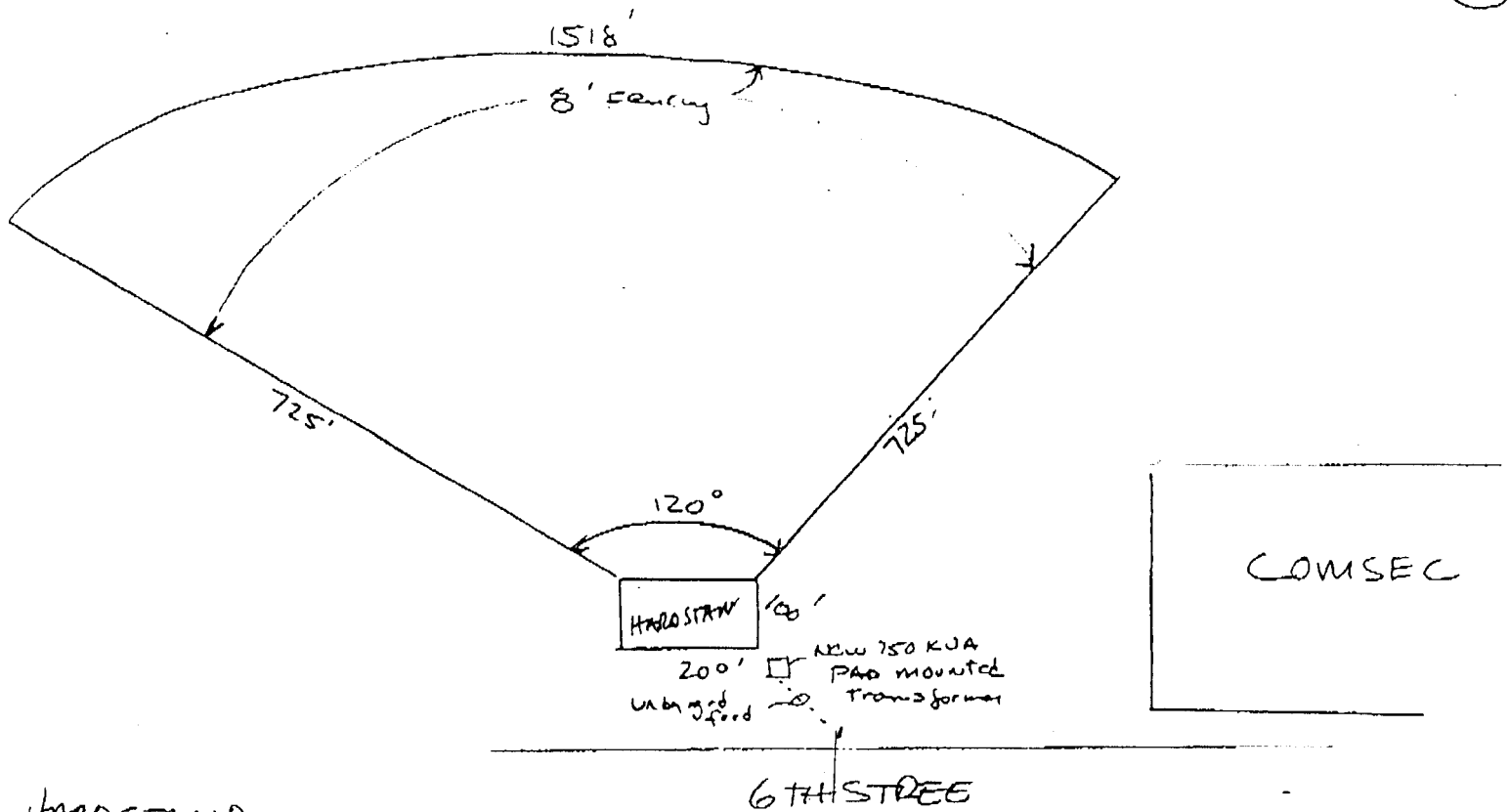
Reference: 1995 Means Mechanical Cost Data
171 340 \$4.48/SF

MASONRY WALLS

(K)

Reference: 1995 Means Building Construction Data
042 232 4600 \$5.35/SF

(L)



HANDSTAND -

$$100 \times 200 = 20,000 \text{ ft}^2$$

$$\underline{\underline{2222 \text{ sy}}}$$

Sub base -

base - 6" stone \rightarrow \$4.21 syBit. Surf. \rightarrow 1 1/2 bunks/line \$490 sy

1022 300 304

025 100 104

O/H Elect'L -

UND'GED Elect'L -

NEW
600'
4 WIRE
OH Elect'l
3 poles

pick up o/h elect'l this point

Fencing - $2968 \text{ LF} \times 12.35 \text{ LF} = \underline{\underline{\$36,655}}$

1995 RS means 028 100 308 1200

Transformer - 750 KVA Silicon Filled

R.S. means. Elect'L - 164 100 170 0250 \rightarrow $\underline{\underline{\$31,500}}$

R.S. MEAN 1995 Electrical 169 100 110

3 poles -

DIGGING HOLES	3 @ 199	=	\$ 597.00
HANDLING POLES	3 @ 269	=	\$ 807.00
ERECT	3 @ 1600	=	4800
HANDLING CROSS ARMS	3 @ 120	=	360
INSTALL CROSS ARM	3 @ 740	=	2220
GUY WIRES & HANDLING	2 @ 1050	=	2100
HANDLING conductors	2500 LIN ft $\approx \frac{1}{2}$ mile	=	\$ 255
1000-1600 mm conductors	$\frac{1}{2}$ mile	=	\$ 2575
Sectional Switch			15,800
TOTAL COST			<u>\$ 29,514</u>

167 100 120 0200

UNDER GROUND Conduit -

(fibre duct)	200 LIN ft @ 4" @ 4.53/LF	=	\$ 906 ✓
(Encs. Conc)	200' x 1' x 8" = 4.9 cy @ 200	=	\$ 980 ✓
PAO 8' x 8' x 1' = $\frac{64}{27}$	= 2.4 cy x 200	=	\$ 480

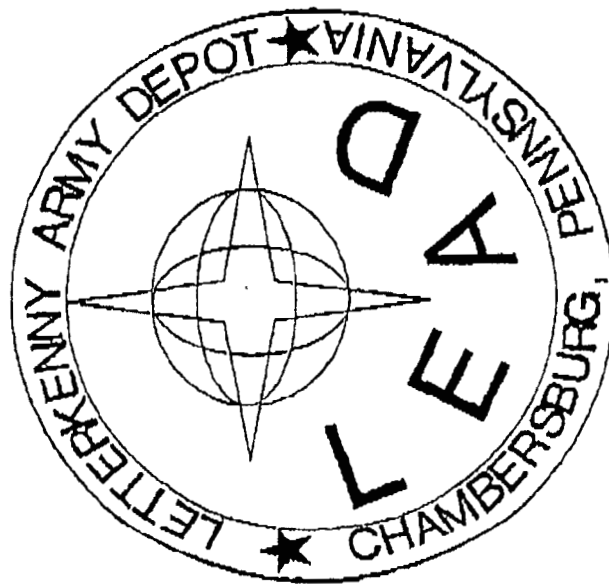
Excavation	= 200 LF x 1.11	=	\$ 222 ✓	022 200
Backfill	= 15 cy x 17.70	=	\$ 265 ✓	
			<u>\$ 2373</u>	

CONSTRUCTION COST ESTIMATE				DATE PREPARED 2-14-95 4-25-95		SHEET OF		
PROJECT LEAD MISSILE CONSOLIDATION				BASIS FOR ESTIMATE				
LOCATION				<input type="checkbox"/> CODE A (NO DESIGN COMPLETED) <input type="checkbox"/> CODE B (PRELIMINARY DESIGN) <input type="checkbox"/> CODE C (FINAL DESIGN) <input type="checkbox"/> OTHER (SPECIFY) _____				
ARCHITECT ENGINEER								
DRAWING NO.		COST AS OF (DATE)		ESTIMATOR		CHECKED BY		
(REFERENCES)	QUANTITY NO. UNITS	UNIT MEAS.	LABOR PER UNIT	TOTAL	MATERIAL PER UNIT	TOTAL	TOTAL COST	REFER. PAGE
<u>BUILDING (CONVERSION)</u>								
REST ROOMS	800	SF	10.2				80000	EST.
ELECT'L TRANSF	750	KVA					35,200	(F)
WALLS 420 x 10'	4200	SF	5.32/SF				22,344	(G)
LIGHTING	79,500	SF	6.32 SF				502,440	(D)
ELECT'L PWR/DIST	79,500	SF	3.22 SF				255,024	(H)
Compressed air	SYS	1					100,000	(I)
& Piping								
Grounding Grid	1	LS					25,000	EST
							\$1,020,008	
<u>(CONVERSION)</u>								
METAL HALIDE LIGHTING	37,500	SF	3.0				\$116,250	(D)
<u>BLDG 4-1</u>								
ELECT'L TRANSF	750	KVA		DIST			35,200	(F)
Paint	10000	SF	.40/SF				4000	(G)
LIGHTING	40,000	SF	6.32 SF				252,800	(D)
							292,000	
<u>BLDG 4-2</u>								
Partitions	9600	SF	5.32/SF	NZ			51072	(G)
STRUCTURAL Support	25,200	SF	8.33/SF	Pods			209,916	(E)
Suspended ceiling	25,200	SF	2.12/SF				53,424	(A)
Insulation	25,200	SF	.64/SF	WALL			16,128	(B)
Lighting	25,200	SF	6.32/SF				159,264	(D)
PWR & Dist	25,200	SF	3.22/SF				81,144	(H)
A/C	25,200	SF	4.41/SF				112,896	(J)
FLOORING	25,200	SF	1.64/SF				41,328	(E)
							\$725,172	

CONSTRUCTION COST ESTIMATE					DATE PREPARED		SHEET OF	
PROJECT					BASIS FOR ESTIMATE <input type="checkbox"/> CODE A (NO DESIGN COMPLETED) <input type="checkbox"/> CODE B (PRILIMINARY DESIGN) <input type="checkbox"/> CODE C (FINAL DESIGN) <input type="checkbox"/> OTHER (SPECIFY) _____			
LOCATION								
ARCHITECT ENGINEER								
DRAWING NO.		COST AS OF (DATE)		ESTIMATOR		CHECKED BY		
(REFERENCES)	QUANTITY NO. UNITS	UNIT MEAS.	LABOR PER UNIT	TOTAL	MATERIAL PER UNIT	TOTAL	TOTAL COST	REFER. PAGE
BUILDING 7-1 (CONVERSION)								
55'X165' WALL ENCL	2640	SF				\$5.35/SF	\$14,124	(K)
ELECTRICAL TRNG	750	KVA					35,200	(F)
SUSPENDED CLG	9075	SF	2.12/SF				19,232	(A)
LIGHTING	9075	SF	6.32/SF				57,354	(D)
DWG AND DIST	9075	SF	3.24/SF				29,221	(H)
A/C	9075	SF	4.44/SF				40,656	(J)
FLOORING	9075	SF	1.64/SF				14,883	(E)
Ceiling Joist/Support	9075	SF	8.33/SF				75,594	(C)
Painting	4080	SF	.40/SF				1,632	(G)
30x40' office encl								
10'4" X (30x40x30) WALLS	1000	SF	5.32/SF				5,320	(K)
SUSP. CLG	1200	SF	2.12/SF				2,544	(A)
FLOORING	1200	SF	1.64/SF				1,968	(E)
LIGHTING	1200	SF	6.32/SF				7,584	(D)
Painting	1400	SF	.40				560	(G)
							\$205,820	
							\$7.65/SF	
RADAR Test Range								
HARD STAND	2222	SY	2	4.21 + 4.91	= 9.21/SY		20,464	(L)
Fencing	2968	LF	2	12.35/LF			36,655	
OH Elect'L	600	LF		Pads			\$29,514	
UNDERGROUND ELECT'L	200	LF					2,373	
PAD	8'x8'						480	
Trng	750	KVA					31,500	
							\$120,986	✓

NAB Form 130

LETTERKENNY ARMY DEPOT



IMPLEMENTATION PLAN

BRAC 95

12 June 1995

Chart 1 of 19

LEAD Implementation Plan

Key Milestones

<u>Date</u>	<u>Event</u>
29 Jun 95	Implementation Plan submission
1 Jul 95	Form Depot Reuse Committee
1 Oct 95	Form Restoration Advisory Board
2 Jan 96	Begin Artillery transitions
1 Apr 96	Begin Missile transitions
30 Sep 97	Complete transitions except Paladin
30 Sep 98	Begin Paladin transition
30 Sep 99	Realignment complete

Chart 2 of 19

MOVEMENT SCHEDULE CHART 1-1

UNIT	DESTINATION	FY96	FY97	FY98	FY99
Letikenny Tactical Missile	TOAD				
Letikenny Artillery	ANAD				
Letikenny Chemical Support Equipment	ANAD				
Defense Logistics Agency	ANAD/Susquehanna				
MICOM	TOAD				
Test Measurement & Diagnostic Equipment Center	TOAD				
Major Item Information Center	Redstone Arsenal				
Systems Integration & Management Activity East	Rock Island				
Defense Accounting Office Letterkenny	Regionalize				
Army Audit Agency	Eliminate				
U.S. Army Health Clinic	Eliminate				
CECOM	Eliminate				
Defense Printing	Eliminate				
Army Corp of Engineer	Eliminate				
Management Engineering Activity	Retained				
Public Works Center	Retained				
Defense Megacenters Chambersburg	Retained				
Test Measurement & Diagnostic Equipment	Retained				
Defense Reutilization & Marking Office	Retained				
Letikenny Army Depot Ammunition	Retained				

Chart 3 of 19

**BASE CLOSURE EXHIBIT
MANPOWER ANNEX
SCHEDULE OF CHANGES**

Proposal: LEAD Realignment

Date: 12 Jun 95

Activity/UIC: LEAD - Depot

	FY96		FY97		FY98		FY99		
ACTION	CIV	MIL	CIV	MIL	CIV	MIL	CIV	MIL	REMARKS
BASLINE	1793	12	1610	12	1524	1	673	1	673 includes: 490 - Depot Maint & Spt 183 - Public Works Center
Artillery Maint to ANAD									
PATRIOT Maint to TOAD to ANAD			-56						
HAWK Maint to TOAD									
FY97 MIL Reduction				-2					
BRAC MIL Reduction				-6					
TAC Miss Maint to TOAD	-140								
PALADIN (Force Structure Reductions)					-498				
PALADIN Maint to ANAD									
BRAC eliminations					-353				
TOTAL	1610	12	1524	1	673	1	673	1	

Chart 4 of 19.

**BASE CLOSURE EXHIBIT
MANPOWER ANNEX
SCHEDULE OF CHANGES**

Proposal: LEAD Realignment Date: 12 Jun 95
Activity/UIC: Tenant Activities at LEAD

ACTION	FY96		FY97		FY98		FY99		REMARKS
	CV	MIL	CV	MIL	CV	MIL	CV	MIL	
BASELINE	537	33	534	32	268	15	296	15	
Magazette	165	15	170	15	178	15	178	15	Retained at LEAD
Mgt Engr Act	21	0	21	0	21	0	21	0	Retained at LEAD
Regional TMDE	60	0	60	0	60	0	60	0	Retained at LEAD
DRMO	37	0	37	0	37	0	37	0	Retained at LEAD
AAA	16	0	-16	0	0	0	0	0	Eliminate
MI COM	0	-1	0	0	0	0	0	0	Transferred to TOAD
CECOM	-1	0	0	0	0	0	0	0	Eliminate
COE	-2	0	0	0	0	0	0	0	Eliminate
Health Clinic	14	0	-14	0	0	0	0	0	Eliminate
LOGSA	126	16	-126	-16	0	0	0	0	Transferred to Huntsville
TMDE Center	11	1	-11	-1	0	0	0	0	Transferred to TOAD
Defense Printing	6	0	-6	0	0	0	0	0	Eliminate
DFAS	78	0	-78	0	0	0	0	0	Regional Base X
TOTAL	534	32	288	15	268	15	296	15	

Chart 5 of 19

LEAD Implementation Plan

Military Construction - LEAD Transition

Project Title	Description/Location	Est Cost
Firing Range Upgrade	Upgrade for Artillery Live Fire/Testing at ANAD	\$249K
Recoil Honing Facility Upgrade	Equipment, Utility & Lighting Upgrades Bldg 133 ANAD	\$185K
Tritium Storage Facility	Clean, Paint, Vent, and Seal Existing Storage Cells at ANAD	\$25K
Recoil Room Expansion	Expand Bldg 143 ANAD (4,800 sq.ft.)	<u>\$294K</u>
SUBTOTAL (ANAD)		\$753K
Guided Msl. Maint. Facility	Renovate Bldg 4 TOAD (43,000 sq.ft.)	<u>\$2800K</u>
SUBTOTAL (TOAD)		\$2800K
TOTAL COST		\$3553K

Chart 8 of 19

CONSTRUCTION ACTION PLAN HIGHLIGHTS & DECISION ISSUES

- Construction projects
 - ANAD - 4 projects, 4,800 sq. ft., \$753K
 - TOAD - 1 project, 43,000 sq. ft., \$2800K

Chart 13 of 19

ENVIRONMENTAL ACTION PLAN HIGHLIGHTS & DECISION ISSUES

- BEC selected
- NEPA document to be prepared by USACE, Mobile District
- USAEC Project Managers selected to manage EBS and BCP contracts
- Cultural Resource Action Plan handled by USACE, Ft. Worth District
- 1383's established and submitted to AMC for BRAC actions

FINANCIAL MANAGEMENT ACTION PLAN

HIGHLIGHTS & DECISION ISSUES

- COBRA model being used as baseline source for factors and formulas. Manpower and dollar estimates are being revised based on most accurate/current information

Chart 16 of 19

Document Separator

703 693 7037 P.001/001

OSD MAINTENANCE POLICY

JUN-05-1995 12:46

To: *Blair Knepple*
703 696 0550

TOAD vs SM-ALC											
	SM-ALC						Tobyhanna				
	Core	Capacity	Ex Cap	MPC	MPC-Core		Core	Capacity	Ex Cap	MPC	MPC-CORE
7a Radar	430410	702409	271999	1235243	804833	Yes	79000	110000	31000	186000	107000
7b Radio	177156	340306	163150	734385	557229	No	667000	1036000	369000	1757000	1090000
7c Wire Com	118283	213534	95251	232517	114234	No	118000	311000	193000	527000	409000
7d Elec Warfare			0	6536	6536	No	371000	591000	220000	1003000	632000
7e Nav Aids	164644	279054	114410	501476	336832	Yes	8000	19000	11000	33000	25000
7f Electro Optics/Night Vis	109115	180134	71019	215300	106185	Yes		5000	5000	8000	8000
7g Sat Cont/Space Sensors	32271	172816	140545	186014	153743	Yes		242000	242000	410000	410000
7h Crypto			0		0	No	168000	337000	169000	338000	170000
Totals	1031879	1888253	856374	3111471	2079592		1411000	2651000	1240000	4262000	2851000

yes
yes
no
no
yes
yes

TOAD → SM

	TOAD (Core)	SM (MPC)	Δ
7a RADIO	667,000	557,229	109,771
7c WIRE COM	118,000	114,234	3,766
7d ELEC WAR	371,000	6,536	364,464
7h CRYPTO	168,000	0	168,000
			<u>646,001</u>

SM → TOAD

	SM (Core)	TOAD (MPC)	Δ
7a RADAR	430,410	107,000	323,410
7e NAV AIDS	164,644	25,000	139,644
			<u>463,054</u>

Tobyhanna to Sacramento (fits in gross terms)
only radar fits (79,000 ~~Core~~)

Sacramento to Tobyhanna

concept Radar
wire communication
Sat Communication

fit fit expand Radar
capability

transfer to Core • Electro optics

Source: Jay Berry,
OSD Main + Policy

Document Separator



DEFENSE BASE CLOSURE
AND REALIGNMENT COMMISSION

Suite 1425
1700 North Moore Street
Arlington, Virginia 22209

FAX COVER SHEET

DATE: 5/26/95

TO: Ron Hamner, Army TABS

FAX #:

FROM: Glenn Knoepfle

NUMBER OF PAGES (including cover): 5

CONTENTS:

Copies of letters for which need answers.

May 12, 1995

Colonel Michael G. Jones
Director, The Army Basing Study
200 Army Pentagon
Washington, D.C. 20310-0200

Dear Colonel Jones:

As you will recall, the Commission requested that your office develop a COBRA to address the costs for relocating tactical missile workloads including missile disassembly and storage, and maintenance of guidance and control systems from Letterkenny Army Depot to Hill Air Force Base. Request you provide certified data showing the following supplemental information:

- The current and future projected tactical missile storage requirements at the Letterkenny for fiscal years 1995 through 2001. The data should be developed in accordance with the basing strategy suggested by the Army in its 1 March 1995 report to the Commission. We prefer that the storage requirements be broken down by missile system and military department (owner). Please note that Letterkenny representatives have indicated the projected storage requirement for FY 99 is about 1 million square feet, while Hill Air Force Base representatives believe the overall tactical missile storage requirement is only about 100,000 square feet.
- A description of the various storage options for each tactical missile system stored or expected to be stored at Letterkenny through fiscal year 2001. Please rank the storage facility options from the most to least desired alternative. We are interested in confirming whether or not, some items currently stored in Letterkenny's secured igloos could be stored in alternative structures such as "controlled warehouse facilities".

Request you provide the requested information no later than 26 May 1995. Thank you for your assistance. I appreciate your time and cooperation.

Sincerely,

Edward A. Brown III
Army Team Leader

EAB/mgk

May 8, 1995

Colonel Michael G. Jones
Director, The Army Basing Study
200 Army Pentagon
Washington, D.C. 20310-0200

Dear Colonel Jones:

Over the last few weeks the Commission staff has received a number of documents from the Letterkenny community. Request you provide specific comments with regard to the following:

Attachment 1 -- Please describe the tactical missile maintenance workload(s) that Red River and Anniston will be transferring to Letterkenny. Is this depot level work or missile, storage, surveillance, certification and uprounding? If this workload is other than depot level work, has the Army evaluated the costs and benefits of such movements?

Attachment 2 -- Please verify the programmed tactical missile workloads for Letterkenny and Hill AFB. In addition, what is the projected tactical missile workload for fiscal year 1999? Based on the DOD recommendation to realign Letterkenny, what portion of the future year workload would be accomplished by the Tobyhanna and Anniston depots?

Attachment 3 -- Please verify that the document represents the approved budget for ongoing Letterkenny tactical missile consolidation efforts during fiscal years 1994 - 1997.

Attachments 4, 5, and 6 -- Information papers for your review and comment.

Attachment 7 -- Provides Letterkenny community concerns about the Army's military value and COBRA analysis.

- Why did the Army place more emphasis on the reported depot capacity measures, which are work station driven, rather than the relative size of the depot in terms of square feet and acres?
- Does the DOD recommendation transfer all programmed work to Tobyhanna and Anniston or just core workload?

- What is the annualized transportation cost for transporting guidance and control sections between Letterkenny and Tobyhanna? What is the cost of transporting vehicles between Tobyhanna and Anniston? How were these costs reflected in the Army's COBRA analysis?
- Why did the Army COBRA analysis provide for the transfer of only 300 personnel authorizations to Tobyhanna? How can Tobyhanna accomplish the same work previously accomplished by some 930 people?
- What are the cost estimates for renovating and/or constructing new buildings at Tobyhanna to facilitate tactical missile maintenance workloads? What are the cost estimates for transferring equipment from Letterkenny to Tobyhanna? Why were these costs excluded from the Army's COBRA estimate?
- Is it reasonable to assume that Anniston can assume 284 manyears of vehicle workload without any additional personnel or construction? What is the basis for the \$5.0 million cost estimate to transfer equipment to Anniston?
- Why doesn't the Army COBRA estimate provide for transfer of personnel and equipment from tenant organizations including LOGSA, SIMA, Public Works, DISA Mega Center, and DFAS?

Attachment 8 -- This document was received from the Letterkenny Commander in response to our request. Information is provided for review and comment.

Request you provide this information no later than 19 May 1995. Thank you for your assistance. I appreciate your time and cooperation.

Sincerely,

Edward A. Brown III
Army Team Leader

EAB/mgk
encl.

Document Separator

Interservice Supercenters: The Pennsylvania Solution

Interservicing - The Way of the Future

An exciting idea whose time has come, interservicing would combine operations of different Armed Forces' branches to reduce excess capacity, eliminate redundant facilities and, consequently, generate significant cost savings. The idea has been studied many times, but rarely put into action. The "Pennsylvania Solution" would capitalize on interservice benefits in the most logical and cost effective way possible. It will take advantage of existing operations and the interservice possibilities that will only become a reality through the Defense Base Closure and Realignment Commission process.

Tobyhanna Army Depot - Ground Communications and Electronics Interservice Supercenter

The consolidation of armed forces ground communications and electronics depot maintenance at the Tobyhanna Army Depot is the most cost-effective solution to reduce excess capacity while not downgrading readiness. Tobyhanna boasts a highly-trained, highly-skilled electronics work force. They are the most efficient ground communications and electronics depot in all of the Department of Defense (DOD) as well as the top-rated Army depot. They have the capacity to assume and perform the workload and can do so at the lowest cost. Military and civilian studies have both determined that interservicing at Tobyhanna is the best business decision.

Letterkenny Army Depot- Tactical Missile Storage and Maintenance Interservice Supercenter

The 1995 Base Closure Commission should support and expand upon the recommendation of the 1993 Commission to consolidate all DOD tactical-missile maintenance at the Letterkenny Army Depot. Letterkenny has the capability and the workforce necessary to handle all DOD missile work. Work and investment have already begun on the consolidation of missile operations to Letterkenny and should be continued. This was the right decision in 1993 and it is the right decision in 1995.

The Pennsylvania Interservice Solution:

Pennsylvania is the logical place to locate an electronics and a missile Interservice Supercenter. Pennsylvania's infrastructure and keystone location will provide the necessary support for these operations. No other state can match the capabilities of Pennsylvania's depots to support our forces overseas. Readiness would be dramatically improved by shortening communications and transportation lines to Europe and the Middle East. Our top-notch facilities and world-class workforce are unmatched anywhere in the country. Military and independent studies have verified the benefits of consolidation of operations at Letterkenny and Tobyhanna. The time for action is now. Moreover, the Army could explore cost-savings through interweaving certain core functions, under one command, at two proximate bases with similar functions. No other depot consolidation scheme can support such a cost saving initiative. Pennsylvania is the logical choice for interservice consolidation. When you look at the total picture, Pennsylvania is the obvious solution.



DEPARTMENT OF THE ARMY
WASHINGTON, D.C. 20310

JUN - 1 1995



Honorable Alan J. Dixon, Chairman
Defense Base Closure and
Realignment Commission
1700 North Moore Street Suite 1425
Arlington, Virginia 22209


Dear Mr. Chairman:


We recognize that some of the more difficult decisions facing the Commission involve maintenance depots. Therefore, we would like to offer our thoughts on several options currently under consideration.

Closing Tobyhanna Army Depot would directly contradict the Army's military value assessment, stationing strategy and DoD selection criteria. Our military value assessment ranks Tobyhanna as the number one Army depot. It is the newest and least costly to operate. The Army's stationing strategy calls for the retention of an electronics-oriented maintenance depot in order to meet the battlefield demands of the future. A fully digitized Army prepared to exploit information-age technology requires Tobyhanna to service and sustain its equipment. During the BRAC 91 process, Tobyhanna successfully won four of its five bid packages against Sacramento Air Logistic Center. The cost to close Tobyhanna would be three times as great, and the savings would be about one-third as much as DoD's proposed realignment of Letterkenny. The Army is counting on these savings to leverage technology to build Force XXI. By any and all measures, Tobyhanna is an installation we must retain.

The Department's proposal to realign Letterkenny Depot preserves DoD's missile consolidation effort, achieves substantial savings for a reasonable investment and reduces overcapacity in ground equipment maintenance in the depot system. The alternatives to move missile maintenance to Hill AFB incur costs anywhere from four to nine times greater than DoD's recommendation with fewer savings. We do not see any advantage in this alternative.

DoD's current recommendations before the Commission eliminate excess capacity and save a substantial sum. They earned the support of the Secretary of Defense's joint cross service group for depot maintenance. We urge your support.


JOHN H. TILELLI, JR.
General, U.S. Army
Vice Chief of Staff


Joe R. Reeder
Under Secretary of the Army

BRAC visit on 1 June 1995 to Tobyhanna Army Depot

Elected Officials at the luncheon:

Senator Rick Santorum
Congressman Joseph McDade
Congressman Paul Kanjorski

Mayor of Scranton: Honorable James Connors
City of Scranton
City Hall
North Washington Avenue
Scranton PA 18501

Mr. Ray Alberigi, Lackawanna County Commissioner
Mr. James Cadue, Monroe County Commissioner
Mr. James Phillips, Luzerne County Commissioner
Ms. Sally Thomson, Pike County Commissioner
Ms. Janet Weidensaul, Monroe County Commissioner

Representative Thomas Tighe

Elected Officials not at the luncheon:

State Representative Joseph Battisto
State Representative Robert Nyce
State Senator Joseph Uliana
Monroe County Commissioner Robert Moore
Coolbaugh Township Supervisor Brande Mark-Falzett

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL

of pages ► 1

To <i>Gene Knopfle</i>	From <i>Joan O'Leary</i>
Dept./Agency <i>BRAC</i>	Phone # <i>717-895-6223</i>
Fax # <i>703-696-0550</i>	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Document Separator

JOSEPH M. McDADE
10TH DISTRICT, PENNSYLVANIA

COMMITTEE:
APPROPRIATIONS

SUBCOMMITTEES:
DEFENSE
INTERIOR

WASHINGTON OFFICE:
☐ 2107 RAYBURN OFFICE BUILDING
WASHINGTON, DC 20515
AREA CODE (202) 225-3731
FAX (202) 225-9594

Congress of the United States
House of Representatives
Washington, DC 20515

May 9, 1995

DISTRICT OFFICES:

☐ SCRANTON LIFE BUILDING
538 SPRUCE STREET
SUITE 514
SCRANTON, PA 18503
(717) 346-3834
FAX (717) 346-8577

☐ HERMAN SCHNEECHEL FEDERAL BUILDING
240 W. THIRD STREET
SUITE 230
WILLIAMSPORT, PA 17701
(717) 327-8161
FAX (717) 327-9359

The Honorable Alan J. Dixon, Chairman
Base Closure and Realignment Commission
1700 North Moore Street, Suite 1425
Arlington, Virginia 22209

Please refer to this number
when responding 950509-23

Dear Mr. Chairman:

Before the Commission votes to add facilities to be considered for realignment or closure, I must respectfully take this opportunity to point out the high military value and the exceptional efficiency of Tobyhanna Army Depot.

Congress established the BRAC process to maximize the sense of fairness and impartiality which must rule the issue of military base closings. [REDACTED]

[REDACTED] Tobyhanna also had the highest military value of any Army depot in the 1993 BRAC.

[REDACTED] Tobyhanna is the largest electronics facility in the Department of Defense, and is a 21st Century installation ready to meet the challenges of the 21st Century warrior.

Tobyhanna's industrial facility is specifically engineered for maximum efficiency and flexibility to support the electronics workload. Operations critical to the electronic mission are consolidated under one roof -- [REDACTED]

[REDACTED] This cohesive industrial layout and organization creates documented increases in production efficiency.

[REDACTED] Tobyhanna has a long, well-documented history of "profits" -- positive Net Operating Results -- when many depots have difficulty in meeting the "break-even" point. Tobyhanna's [REDACTED]

[REDACTED] Other

May 9, 1995
Page 2

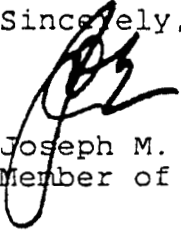
[REDACTED]

There are many more positive attributes which point to Tobyhanna as a DoD center of excellence for years to come; your data surely confirms this. I understand the commission has asked the Army for cost estimates involving the transfer of Tobyhanna workloads to Letterkenny Army Depot. What I don't understand is why we would want to move workloads from the top-rated depot in the Army to the lowest-rated depot.

As a resident of Northeastern Pennsylvania and also as a [REDACTED] military [REDACTED]
[REDACTED]
[REDACTED] Department of
Defense -- Tobyhanna Army Depot [REDACTED]

With warm personal regards, I am

Sincerely,


Joseph M. McDade
Member of Congress

JMM:jod

Document Separator

THE DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION

EXECUTIVE CORRESPONDENCE TRACKING SYSTEM (ECTS) # 950606-23

FROM: REED, THOMAS B. TITLE: PRESIDENT ORGANIZATION: MT. POCONO BOROUGH COUNCIL INSTALLATION (S) DISCUSSED: TOBYHANNA ARMY DEPOT	TO: DIXON TITLE: CHAIRMAN ORGANIZATION: DBCRC
---	--

OFFICE OF THE CHAIRMAN	FYI	ACTION	INTT	COMMISSION MEMBERS	FYI	ACTION	INTT
CHAIRMAN DIXON				COMMISSIONER CORNELLA			
STAFF DIRECTOR	✓			COMMISSIONER COX			
EXECUTIVE DIRECTOR	✓			COMMISSIONER DAVIS			
GENERAL COUNSEL	✓			COMMISSIONER KLING			
MILITARY EXECUTIVE				COMMISSIONER MONTOYA			
				COMMISSIONER ROBLES			
DIR./CONGRESSIONAL LIAISON		✓		COMMISSIONER STEELE			
DIR./COMMUNICATIONS				REVIEW AND ANALYSIS			
				DIRECTOR OF R & A	✓		
EXECUTIVE SECRETARIAT				ARMY TEAM LEADER			
				NAVY TEAM LEADER			
DIRECTOR OF ADMINISTRATION				AIR FORCE TEAM LEADER			
CHIEF FINANCIAL OFFICER				INTERAGENCY TEAM LEADER	✓		
DIRECTOR OF TRAVEL				CROSS SERVICE TEAM LEADER		X	
DIR./INFORMATION SERVICES							

TYPE OF ACTION REQUIRED

<input checked="" type="checkbox"/> Prepare Reply for Chairman's Signature <input type="checkbox"/> Prepare Reply for Staff Director's Signature <input checked="" type="checkbox"/> ACTION: Offer Comments and/or Suggestions	<input type="checkbox"/> Prepare Reply for Commissioner's Signature <input type="checkbox"/> Prepare Direct Response <input checked="" type="checkbox"/> FYI
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Subject/Remarks:

FORWARDING RES ~~IN~~ IN SUPPORT OF DEPOT,

Due Date: 950613	Routing Date: 950606	Date Originated: 950525	Mail Date:
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BOROUGH OF MOUNT POCONO

Municipal Building
Mount Pocono, Pennsylvania 18344
(717) 839-8436

May 25, 1995

Please refer to this number
when responding 950606-23

The Honorable Alan J. Dixon
Defense Base Closure and Realignment Commission
1700 North Moore Street Suite 1425
Alrlington, VA 22209

Dear Chairman Dixon:

Enclosed please find a resolution passed by the Borough Council of Mount Pocono in unanimous support of the retention of the Tobyhanna Army Depot. It is our steadfast belief that the closure of the Tobyhanna Army Depot would not only be devastating loss to the military customers it serves, but would also have a severe negative impact on the local economy, thus creating a serious void in funding to local municipal government.

9,533 area residents are employed in jobs dependant on the depot, where they earn \$265 million annually in addition to the \$106 million earned by employees of the Tobyhanna Army Depot. I am sure you can agree that the tax monies (Tobyhanna Depot personnel paid \$4.3 million in State and Local taxes for 1993) that would be lost by closing our country's #1 rated Army Depot would create undue hardship to all residents and taxpayer's of Northeastern Pennsylvania.

I am sure you are aware of the military value, high standard of productivity, and cost effectiveness of the Tobyhanna Army Depot, and hope you will consider the additional economic facts I've stated when making your final decision. Thank you for your consideration in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "TBR", written over a horizontal line.

Thomas B. Reed
President
Mount Pocono Borough Council

TBR:lfy



BOROUGH OF MOUNT POCONO

Municipal Building
Mount Pocono, Pennsylvania 18344
(717) 839-8436

RESOLUTION

**IN SUPPORT OF THE RETENTION OF TOBYHANNA ARMY DEPOT AS A KEY
EMPLOYER AND ECONOMIC GENERATOR IN EASTERN PENNSYLVANIA**

WHEREAS, Tobyhanna Army Depot has a tradition of excellence in our military system; and

WHEREAS, the Depot has been in integral part of our regional economy since 1953; and

WHEREAS, Tobyhanna Army Depot has fulfilled its mission over the years and has always maintained a reputation as a "Good Neighbor" in our community; and

WHEREAS, the Depot has supported and initiated many worthwhile community projects in our region; and

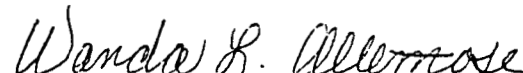
WHEREAS, The Mount Pocono Borough Council recognizes the critical role of Tobyhanna Army Depot in our military system and its positive influence on local counties across Northeastern Pennsylvania;


NOW, THEREFORE, BE IT RESOLVED that the Mount Pocono Borough Council unanimously supports Tobyhanna Army Depot to continue its important mission in our military system and urge that all local governments, private sector organizations, and not-for-profit organizations in Monroe County adopt resolutions of support for the retention of Tobyhanna Army Depot.

MOUNT POCONO BOROUGH COUNCIL



Thomas B. Reed, President

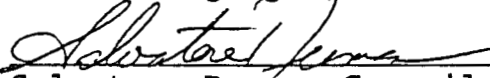

Mario Scavello, Mayor


Wanda L. Altemose, V. President


John Finnerty, Councilman


Vincent Megargel, Councilman


Roy Gross, Councilman


Salvatore Dumas, Councilman


Paul Kernan, Councilman

Document Separator

THE DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION

EXECUTIVE CORRESPONDENCE TRACKING SYSTEM (ECTS) # 950605-28

FROM: REEDER, JOE R. TITLE: UNDER SEC OF THE ARMY ORGANIZATION: DEPT OF THE ARMY	TO: DIXON TITLE: CHAIRMAN ORGANIZATION: DBCRC
INSTALLATION (s) DISCUSSED: LETTERKENNY, TOBYHANNA	

OFFICE OF THE CHAIRMAN	FYI	ACTION	INIT	COMMISSION MEMBERS	FYI	ACTION	INIT
CHAIRMAN DIXON				COMMISSIONER CORNELLA	✓		
STAFF DIRECTOR	✓			COMMISSIONER COX	✓		
EXECUTIVE DIRECTOR	✓			COMMISSIONER DAVIS	✓		
GENERAL COUNSEL	✓			COMMISSIONER KLING	✓		
MILITARY EXECUTIVE				COMMISSIONER MONTOYA	✓		
				COMMISSIONER ROBLES	✓		
DIR./CONGRESSIONAL LIAISON				COMMISSIONER STEELE	✓		
DIR./COMMUNICATIONS				REVIEW AND ANALYSIS			
				DIRECTOR OF R & A	✓		
EXECUTIVE SECRETARIAT				ARMY TEAM LEADER	✓		
				NAVY TEAM LEADER			
DIRECTOR OF ADMINISTRATION				AIR FORCE TEAM LEADER			
CHIEF FINANCIAL OFFICER				INTERAGENCY TEAM LEADER	✓		
DIRECTOR OF TRAVEL				CROSS SERVICE TEAM LEADER	✓		
DIR./INFORMATION SERVICES							

TYPE OF ACTION REQUIRED

<input type="checkbox"/> Prepare Reply for Chairman's Signature	<input type="checkbox"/> Prepare Reply for Commissioner's Signature
<input type="checkbox"/> Prepare Reply for Staff Director's Signature	<input type="checkbox"/> Prepare Direct Response
<input type="checkbox"/> ACTION: Offer Comments and/or Suggestions	<input checked="" type="checkbox"/> FYI

Subject/Remarks:

SUPPORTING RECOMMENDATION TO REALIGN
 LETTERKENNY AND KEEP OPEN TOBYHANNA.

Due Date:	Routing Date: 950605	Date Originated: 950601	Mail Date:
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DEPARTMENT OF THE ARMY
WASHINGTON, D.C. 20310



JUN - 1 1995

Honorable Alan J. Dixon, Chairman
Defense Base Closure and
Realignment Commission
1700 North Moore Street Suite 1425
Arlington, Virginia 22209

Please refer to this number
when responding 950605-28


Dear Mr. Chairman:

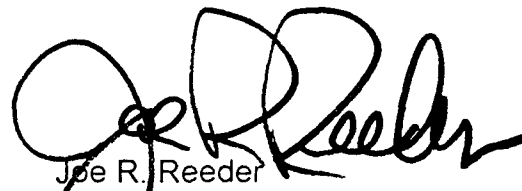
We recognize that some of the more difficult decisions facing the Commission involve maintenance depots. Therefore, we would like to offer our thoughts on several options currently under consideration.

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The Department's proposal to realign Letterkenny Depot preserves DoD's missile consolidation effort, achieves substantial savings for a reasonable investment and reduces overcapacity in ground equipment maintenance in the depot system. The alternatives to move missile maintenance to Hill AFB incur costs anywhere from four to nine times greater than DoD's recommendation with fewer savings. We do not see any advantage in this alternative.

DoD's current recommendations before the Commission eliminate excess capacity and save a substantial sum. They earned the support of the Secretary of Defense's joint cross service group for depot maintenance. We urge your support.


JOHN H. TILELLI, JR.
General, U.S. Army
Vice Chief of Staff


Joe R. Reeder
Under Secretary of the Army

Document Separator

THE DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION

EXECUTIVE CORRESPONDENCE TRACKING SYSTEM (ECTS) # 950605-19

FROM: <u>MELLOW, ROBERT J.</u>	TO: <u>DIXON</u>
TITLE: <u>DEMOCRATIC LEADER</u>	TITLE: <u>CHAIRMAN</u>
ORGANIZATION: <u>SENATE OF PA</u>	ORGANIZATION: <u>DBCRC</u>
INSTALLATION (S) DISCUSSED: <u>TOBYHANNA ARMY DEPOT</u>	

OFFICE OF THE CHAIRMAN	FYI	ACTION	INIT	COMMISSION MEMBERS	FYI	ACTION	INIT
CHAIRMAN DIXON				COMMISSIONER CORNELLA	✓		
STAFF DIRECTOR	✓			COMMISSIONER COX	✓		
EXECUTIVE DIRECTOR	✓			COMMISSIONER DAVIS	✓		
GENERAL COUNSEL	✓			COMMISSIONER KLING	✓		
MILITARY EXECUTIVE				COMMISSIONER MONTOYA	✓		
				COMMISSIONER ROBLES	✓		
DIR./CONGRESSIONAL LIAISON		⊙		COMMISSIONER STEELE	✓		
DIR./COMMUNICATIONS				REVIEW AND ANALYSIS			
				DIRECTOR OF R & A	✓		
EXECUTIVE SECRETARIAT				ARMY TEAM LEADER	✓		
				NAVY TEAM LEADER			
DIRECTOR OF ADMINISTRATION				AIR FORCE TEAM LEADER			
CHIEF FINANCIAL OFFICER				INTERAGENCY TEAM LEADER	✓		
DIRECTOR OF TRAVEL				CROSS SERVICE TEAM LEADER		X	
DIR./INFORMATION SERVICES							

TYPE OF ACTION REQUIRED

<input checked="" type="checkbox"/> Prepare Reply for Chairman's Signature <input type="checkbox"/> Prepare Reply for Staff Director's Signature <input checked="" type="checkbox"/> ACTION: Offer Comments and/or Suggestions	<input type="checkbox"/> Prepare Reply for Commissioner's Signature <input type="checkbox"/> Prepare Direct Response <input checked="" type="checkbox"/> FYI
--	--

Subject/Remarks:

LETTER OF SUPPORT.

Due Date: <u>950607</u>	Routing Date: <u>950605</u>	Date Originated: <u>950531</u>	Mail Date:
-------------------------	-----------------------------	--------------------------------	------------

The Democratic Leader

22ND DISTRICT
ROBERT J. MELLOW
SENATE BOX 203022
THE STATE CAPITOL
HARRISBURG, PA 17120-3022
PHONE: (717) 787-6481
FAX: (717) 783-5198

524 MAIN STREET
PECKVILLE, PA 18452
PHONE: (717) 489-0336
FAX: (717) 963-3170

SCRANTON LIFE BUILDING
SCRANTON, PA 18503
PHONE: (717) 346-5721



Senate of Pennsylvania

May 31, 1995

COMMITTEES

RULES AND EXECUTIVE NOMINATIONS,
MINORITY CHAIRMAN
ETHICS, MINORITY CHAIRMAN
APPROPRIATIONS

Please refer to this number
when responding 950605-19

The Honorable Alan J. Dixon, Chairman
Defense Base Closure and Realignment Commission
1700 North Moore Street
Arlington, VA 22209

Dear Senator Dixon:

We, the undersigned state legislators who represent constituents in Lackawanna County, Pennsylvania, are deeply concerned about the Defense Base Closure and Realignment Commission's proposal to realign or close Tobyhanna Army Depot.

Although certain that the Commission will receive similar letters from legislators representing other areas where depots are being reviewed for realignment or closure, we do not believe any other Army depot can match Tobyhanna's record of excellence. In fact, Tobyhanna recently received the military's highest value rating.

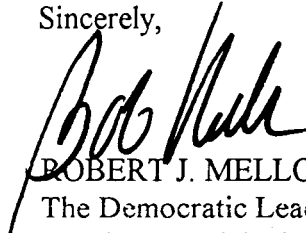
Because it is the nation's highest rated and largest full-service communications/electronics maintenance facility, the closing of Tobyhanna could prove damaging to our national defense policy. If military value to the United States is the primary criterion on which the Commission bases its decisions, then Tobyhanna should remain open.


In addition to its military value, Tobyhanna ranks high in return on investments and impacts. Analyses comparing Tobyhanna to other military facilities have pointed out that the Defense Department would incur higher closure costs, lower annual savings and a longer wait for return on investment if Tobyhanna were to close. Economically, it would deal a devastating blow to northeastern Pennsylvania which lists Tobyhanna Army Depot, with 3,600 employees, as its largest employer.


Tobyhanna has already been recognized as the best defense maintenance facility in the country. Therefore, the theme adopted by the Tobyhanna Army Depot Blue Ribbon Task Force (a regional panel established in our region to convince members of the Defense Base Closure and Realignment Commission that Tobyhanna Army Depot deserves to remain open) says it all: "Keep the Best."

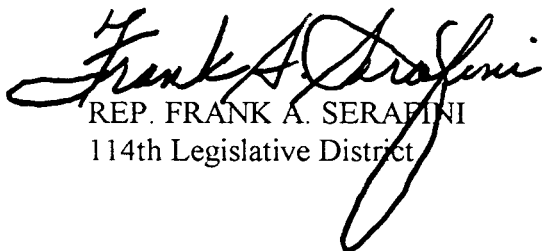
We are confident that, after carefully scrutinizing all the facts, the Defense Base Closure and Realignment Commission will agree that Tobyhanna Army Depot should be kept open. Our nation, and the men and women who serve as members of the military, deserve nothing but the best.

Sincerely,


ROBERT J. MELLOW
The Democratic Leader
22nd Senatorial District


REP. GAYNOR CAWLEY
113th Legislative District


REP. EDWARD G. STABACK
115th Legislative District


REP. FRANK A. SERAFINI
114th Legislative District


REP. FRED BELARDI
112th Legislative District

Document Separator

THE DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION

EXECUTIVE CORRESPONDENCE TRACKING SYSTEM (ECTS) # 95060520

FROM: <u>UEON, MIKE</u> TITLE: <u>STATE REP.</u> ORGANIZATION: <u>Comm of PA,</u> INSTALLATION (s) DISCUSSED: <u>TORBYHANNA ARMY DEPOT.</u>	TO: <u>GENERAL</u> TITLE: ORGANIZATION: <u>DBCRC</u>
---	--

OFFICE OF THE CHAIRMAN	FYI	ACTION	INIT	COMMISSION MEMBERS	FYI	ACTION	INIT
CHAIRMAN DIXON				COMMISSIONER CORNELLA			
STAFF DIRECTOR	✓			COMMISSIONER COX			
EXECUTIVE DIRECTOR	✓			COMMISSIONER DAVIS			
GENERAL COUNSEL	✓			COMMISSIONER KLING			
MILITARY EXECUTIVE				COMMISSIONER MONTOYA			
				COMMISSIONER ROBLES			
DIR./CONGRESSIONAL LIAISON		Ⓢ		COMMISSIONER STEELE			
DIR./COMMUNICATIONS				REVIEW AND ANALYSIS			
				DIRECTOR OF R & A	✓		
EXECUTIVE SECRETARIAT				ARMY TEAM LEADER			
				NAVY TEAM LEADER			
DIRECTOR OF ADMINISTRATION				AIR FORCE TEAM LEADER			
CHIEF FINANCIAL OFFICER				INTERAGENCY TEAM LEADER	✓		
DIRECTOR OF TRAVEL				CROSS SERVICE TEAM LEADER		X	
DIR./INFORMATION SERVICES							

TYPE OF ACTION REQUIRED

Ⓢ	Prepare Reply for Chairman's Signature		Prepare Reply for Commissioner's Signature
	Prepare Reply for Staff Director's Signature		Prepare Direct Response
X	ACTION: Offer Comments and/or Suggestions	✓	FYI

Subject/Remarks:

LETTER OF SUPPORT.

Due Date: <u>950607</u>	Routing Date: <u>950605</u>	Date Originated: <u>950631</u>	Mail Date:
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MIKE VEON, CHAIRMAN
DEMOCRATIC POLICY COMMITTEE



House of Representatives
COMMONWEALTH OF PENNSYLVANIA
HARRISBURG

- ☐ 924 SEVENTH AVENUE
BEAVER FALLS, PENNSYLVANIA 15010
PHONE: (412) 847-1352
- ☐ MAIN CAPITOL BUILDING
HOUSE BOX 202020
HARRISBURG, PENNSYLVANIA 17120-2020
PHONE: (717) 787-1290

May 31, 1995

Please refer to this number
when responding 950605-20

Defense Base Closure & Realignment Commission
1700 North Moore Street
Suite 1425
Arlington, VA 22209

To Whom it May Concern:

I am writing to offer my support to the Tobyhanna Army Depot in Tobyhanna, Pennsylvania. This depot is the major employer in this rural area and the closure of this army base would cause a major economic hardship to the people and businesses in this area. This depot is no less important than any of the other Army facilities located across the United States.

Please register my concern and support for the continued operation of the facility. Thank you for your cooperation in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mike Veon'.

Representative Mike Veon
Democratic Policy Chairman

Document Separator



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
INSTALLATIONS LOGISTICS AND ENVIRONMENT
110 ARMY PENTAGON
WASHINGTON DC 20310-0110



March 24, 1995

Please refer to this number
when responding 950327-6

Honorable Alan J. Dixon
Chairman
Defense Base Closure and
Realignment Commission
1700 N. Moore Street, Suite 1425
Arlington, VA 22209

Dear Senator Dixon:

Thank you for the recent opportunity to testify
before the Commission regarding the Army's 1995 base
closure and realignment recommendations.

In response to your request to the Secretary of the
Army, dated March 9, 1995, enclosed are answers to your
questions for the record. The information is accurate to
the best of my knowledge and belief.

The Army hopes to continue its good working
relationship with the Commission in the months ahead.
Please let me know if you need any further assistance.

John B. Moore
for Robert M. Walker
Assistant Secretary of the Army
(Installations, Logistics & Environment)

Enclosures

Tobyhanna vs Fort Rucker

TORAD has high capacity

- TORAD has newer buildings*
- TORAD has lower installation base operating expenses*
- TORAD has high % of ~~new~~ permanent buildings*

JOINT CROSS SERVICE GROUPS/ARMY

1. The 1993 Commission recommended that DoD look at cross-service issues in greater detail.

How did the Army consider/incorporate recommendations from the Joint Cross-Service Working Groups?

The Army was an active member in each of the five functional cross-service groups and their subordinate working groups. The Army participated in the development of the methodology, determination of excess capacity data call formulation, review of responses, development alternatives, and review of Military Department (MILDEP) analysis and recommendations.

Each of the cross-service groups developed a number of alternatives for consideration by the Military Departments. Alternatives were normally composed of a number of separate or competing options. Accordingly, the MILDEPs were not expected to adopt all alternatives from a single cross-service group. Rather, the MILDEPs were to evaluate alternatives using their service processes to identify feasible, financially attractive scenarios. The Army reviewed these cross-service scenarios along with its own, eventually rejecting or adopting some, while modifying others. A summary of each alternative considered is included as part of the Army BRAC report.

How was this coordinated with the other services?

The Joint Cross Service Groups structure allowed for almost daily contact and coordination with all Services. This coordination was conducted in person, by telephone and fax, with written certification for the record, as required.

2. Did anyone in the Office of the Secretary of Defense require the Army to include any of the alternatives of the Joint Cross Service Groups in its recommendations? Please specify?

No. The Joint Cross-Service Groups did require all alternatives to be assessed and presented to the Joint Cross Service Group for review.

3. The 1993 Commission rejected the Department's recommendation to close Letterkenny Army Depot and directed that the tactical missile maintenance workload previously conducted at 9 different DoD depots be consolidated at Letterkenny.

What workload has already been transferred?

Twelve of the 29 missiles or missile configurations have transferred to Letterkenny to date.

What is the schedule for transferring the remaining workload?

An additional 9 systems will transfer in FY95, 3 systems in FY96 and 5 systems in FY97.

How much has already been obligated in support of the missile maintenance consolidation plan at Letterkenny?

A total of \$16.1M was spent in FY94, of which \$4.5M was allocated to construction, \$1.7M was procurement and \$9.9M was operations and maintenance (OMA) funds. Another \$10M OMA has been obligated in FY95.

Has the Army re-evaluated the cost/benefit ratio of the missile maintenance consolidation plan at Letterkenny? If so, please comment on the results of the updated analysis.

The Army strongly supports the concept of missile maintenance consolidation. However, both Army and Joint Cross Service Group analysis identified substantial excess capacity in Army ground maintenance depots. The Army ultimately identified Red River for closure and Letterkenny Army depot for realignment. The Army's recommendation realigns Letterkenny by transferring vehicle maintenance workload to Anniston, AL. Missile workload will continue to come to Letterkenny for disassembly and storage. Missile guidance and control systems will be sent to Tobyhanna Army Depot, 127 miles away. Upon repair, missiles will be reassembled and certified at Letterkenny. This recommendation preserves Letterkenny's missile disassembly and storage mission and, it capitalizes on Tobyhanna's electronic focus and retains missile repair at a single depot.

4. The Joint Cross Service Group on Depot Maintenance (JCSG-DM) suggested that air launched missile maintenance be consolidated at Hill Air Force Base; ground launched missile maintenance work be consolidated at Anniston Army Depot and the Marine Corps Hawk missile workload be accomplished at Barstow.

Why did the Army reject the cross-service team proposal and instead consolidate all missile work at Tobyhanna Army Depot?

When the Army presented the results of its COBRA analysis on the JCSG-DM alternative closures and associated work packages, it became apparent that the cross-service group alternative would obviate the gains developed during BRAC 93 in consolidating tactical missile maintenance. The chairman requested the Army propose alternative solutions. By modifying the location for the missile work packages and accepting the ground work at Anniston, the Army's solution produced a scenario similar to the cross-service group's alternative (closure/realignment of Red River and Letterkenny) with 1/3 the cost and twice the steady state savings. This recommendation recognized the importance of missile maintenance consolidation and was accepted by the JCSG-DM and approved by the Secretary of Defense.

DEPOTS

Your analysis of military value for the four depots ranked Tobyhanna first, Anniston second, Red River third, and Letterkenny fourth. In your recommendations to the Commission, you recommended closure of Red River and realignment of Letterkenny.

1. Did you consider closing all four depots? If not, which depots did you exclude? For what reasons did you exclude them?

Yes. The Army considered each of its four maintenance depots. Because of their high military value, Anniston and Tobyhanna Depots ultimately were not selected as study candidates. A fifth Army maintenance depot, Corpus Christi Army Depot, a tenant activity on a Navy installation, was evaluated by the Joint Cross-Service Group for Depot Maintenance. The Depot Joint Cross-Service Group, in their separate analysis of all maintenance depot workload and capacity, recommended closure of Letterkenny and Red River Depots.

2. Did you consider moving production lines from Anniston to Red River? If not, why?

No. Anniston has greater military value than Red River. Anniston is the Army's heavy combat vehicle maintenance depot and is facilitized to accommodate both the mission workload as well as the necessary industrial equipment, heavy lift cranes, including a 75 ton Gantry Crane capable of easily off-loading the M1A1 Abrams Tank. Its maintenance area can accommodate the Army's next generation of heavy combat vehicles without major facility upgrade. The DoD Joint Cross-Service Group for Depot Maintenance supported Anniston as DoD's heavy combat vehicle maintenance depot. They recommended the closure of Red River and consolidation of its light combat vehicle maintenance workloads into Anniston.

3. What military attributes about Tobyhanna and Anniston were so compelling that they were removed from consideration?

All depots were considered by both the Army and DoD's Joint Cross-Service Group. Anniston and Tobyhanna have higher maintenance capacity, higher percentages of permanent facilities, and a lower installation base operating expense. In addition, Anniston has a higher supply capacity and Tobyhanna has newer facilities. A more detailed analysis is available in Reference Volume II of the Army's report to the Commission.

4. The Navy has recommended realignment of Naval Air Station Corpus Christi. Corpus Christi Army Depot is a tenant there, and relies on the Navy airfield for helicopter flight operations. Does the realignment of Naval Air Station Corpus Christi to a Naval Air Facility impact on Army plans for Corpus Christi Army Depot? If yes, how?

The realignment of the Naval Air Station Corpus Christi to a Naval Air Facility does not affect Army plans for Corpus Christi Army Depot.

5. In the Army's report to this Commission, comments on the alternatives presented by the Joint Cross-Service Group for Depot Maintenance pertain only to alternatives that result in losses to Army depots. Are there any gains from other Services at Army depots as a result of the Joint Cross Service Group recommendations? If yes, do these impact on your depot analyses or recommendations?

Yes. The results of the Joint Cross-Service Group for Depot Maintenance (JCSG-DM) do include recommendations for transfer of other services' workloads into Army depots. DoD's procedures required only the losing service to analyze the joint recommendations for workload transfer. The Army determined that gains from other services can be accommodated at the Army's remaining depots.

6. If your recommendations are fully implemented, will the Army depot structure retain excess capacity which could be used for workload from other services?

Yes. After Red River closes and Letterkenny realigns, the remaining maintenance depots will function at approximately 80% core capacity. The remaining capacity could be used for workload from other services.

8 June 95

Ann,

I was a little concerned when you mentioned the large difference between our "Lost Time Incidents Per 200K Hours" compared to the Air Force so I looked into it. The attached paper is a quick analysis of what may be the difference between the Army and the other Services for this computation. The top page is the analysis and the other pages are enclosures. Hope it helps.

Bob Haas
Tobyhanna Army Depot

Bob Haas

June 8, 1995
INFORMATION PAPER

SUBJECT: Tobyhanna Army Depot (TOAD) Lost Time Injury Rates Per 200K Hours

FACTS:

● The Occupational Safety and Health Administration (OSHA) targets Federal agencies for inspection based on the number of lost-time injuries/illness (from Office of Worker's Compensation Programs-department of Labor Data) per 100 employees.

● OSHA works on the assumption that an average employee works 50 weeks per year; with a 40 hour work week. For 100 employees, hours of exposure in one year would equal
 $100 \times 50\text{wks} \times 40\text{hr} / \text{wk} = 200,000 \text{ hours}$. Hence the term 200K hours exposure rate.

● To compute the OSHA injury rate the following formula is used as directed by the U.S. Army Armament, Munitions and Chemical Command (AMCCOM) memorandum dated 15 Dec 94 (encl 1).

$$\frac{\text{Number of lost-time injury and illness claims} \times 100}{\text{Actual Strength}} = \text{OSHA Rate}$$

● For example, in FY 94, Tobyhanna had 77 claims and a strength of 2,767 employees. Our rate was computed as follows:

$$\frac{77 \times 100}{2,767} = 2.78 \text{ OSHA Rate}$$

DISCUSSION:

1. Discrepancies between Services may arise in this computation and lead to unfair comparisons for some of the following reasons:

a. A Service may use a base of other than that of "per 100 employees" that the Army uses.

b. Soldiers and large whitecollar populations (such as an Air Logistics Center program management population) included in actual strength figures would lower this lost time incidence rate; Soldiers should not be included in this computation, whitecollar workers have a lower incidence of lost time than bluecollar workers due to differences in work environment.

2. Safety standards (per 100 employees) for different Manufacturing Industries are shown in enclosure #2. Standards for the Communications Equipment Industry for an installation the size of Tobyhanna reflect a 3.9 average incidence rate. Tobyhanna is well under this average.

RDA



DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND
ROCK ISLAND, ILLINOIS 61299-6000



REPLY TO
ATTENTION OF

AMSMC-SFP (385-40a)

15 DEC 1994

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Civilian Resource Conservation Program (CRCP)

1. The Occupational Safety and Health Administration (OSHA) targets Federal agencies for inspection based on the number of lost-time injuries/illnesses (from Office of Workers' Compensation Programs (OWCP) Table II data) per 100 employees. Compensation claims data for U.S. Army Armament, Munitions and Chemical Command (AMCCOM)/U.S. Army Depot System Command (DESCOM) installations will be presented in the quarterly review and analysis in a like manner. Table II lost-time compensation claims data will be used in the following formula to calculate installation rates:

$$\frac{\text{number of lost-time injury and illness claims} \times 100}{\text{Actual Strength}} = \text{RATE}$$

The national average rate of lost-time injury and illness claims for Federal agencies for FY 95 is 2.70, based on FY 93 claims data. Installations with a rate above 2.70 are subject to inspection by OSHA. Installations with a rate of 5.4 (two times the national average) or above are guaranteed inspection by OSHA. The AMCCOM/DESCOM claims rate data for FY 93 and FY 94, including the 5 percent reduction ceiling for FY 95, is at enclosure 1.

2. The OWCP Table II compensation claims data is available through the U.S. Army Safety Center computer database called ASMIS. A printout of your installations Table II claims data is at enclosure 2. The printout includes all claims submitted to the OWCP. The lost-time claims can be identified by an X under the heading EXTINJ, which stands for Extent of Injury. Claims with a number 1 under EXTINJ are considered no lost-time and an O means fatal. Installations who have been mistakenly charged with another installation's claims need to document attempts with OWCP to have the claims appropriately charged. This is critical if you are targeted by OSHA for inspection based on inaccurate data.

3. Installations are required to maintain a log of injuries and illnesses IAW OSHA. Army Regulation 385-40, Accident Reporting and Records, 1 November 1994, paragraph 2-10, merely echoes the OSHA requirement for a log. The AR suggests that separate logs

ENCL 1

AMSMC-SFP

SUBJECT: Civilian Resource Conservation Program (CRCP)

be used for civilian and military injuries/illnesses, however, it is not mandatory. Installations are **not** to maintain separate civilian logs using the criteria of OSHA for one, and AR 385-40 for the other.

4. Definitions for lost time, no lost time, and first aid are provided at enclosure 3. The enclosed definitions for DA civilian injury/illnesses are clarification of those provided in AR 385-40. The OWCP will automatically code a claim as lost time if the CA1 or CA2 indicates that leave or continuation-of-pay were used, or if a date stopped or started work is indicated. Therefore, if a claim does NOT involve lost time, no date should appear in these blocks.

5. Installations need to analyze claims data not only for cause of injury but for a number of variables such as training, experience, type of appointment (temporary, term), reduction-in-force, cost for types of injuries, etc. If detailed analyses are performed, valuable resources can be directed to correct the most costly (in terms of medical expenses and days away from work) injuries/illnesses first.

6. Tenant activities can be persuaded to reduce compensation claims and costs by decrementing services to cover the compensation costs paid by the host installation. Host commanders normally meet with tenant commanders periodically at which time the host commander can discuss compensation bills as well as bills for electricity and water. Host installations can develop cost per capita comparison charts on compensation costs for all tenants and publish this data to get the tenant commanders' attention.

7. The CRCP is a team effort. Lets work together.

8. The POC is Mrs. Debby Westervelt, HQ, AMCCOM, AMSMC-SFP, DSN 793-2986, E-mail sfpl@ria-emh2.army.mil, and Mr. Dennis Lemmon, HQ, DESCOM, AMSDS-IN-S, DSN 570-9073.

FOR THE COMMANDER:

3 Encls
as

Jesse M. Granger
JESSE M. GRANGER
Chief, DESCOM
Safety Office

Glenn S. Leach
GLENN S. LEACH
Acting Chief, AMCCOM
Safety Office

Evaluating Your Firm's Injury and Illness Record

Manufacturing
Industries



U.S. Department of Labor
Bureau of Labor Statistics
September 1991

Report 808

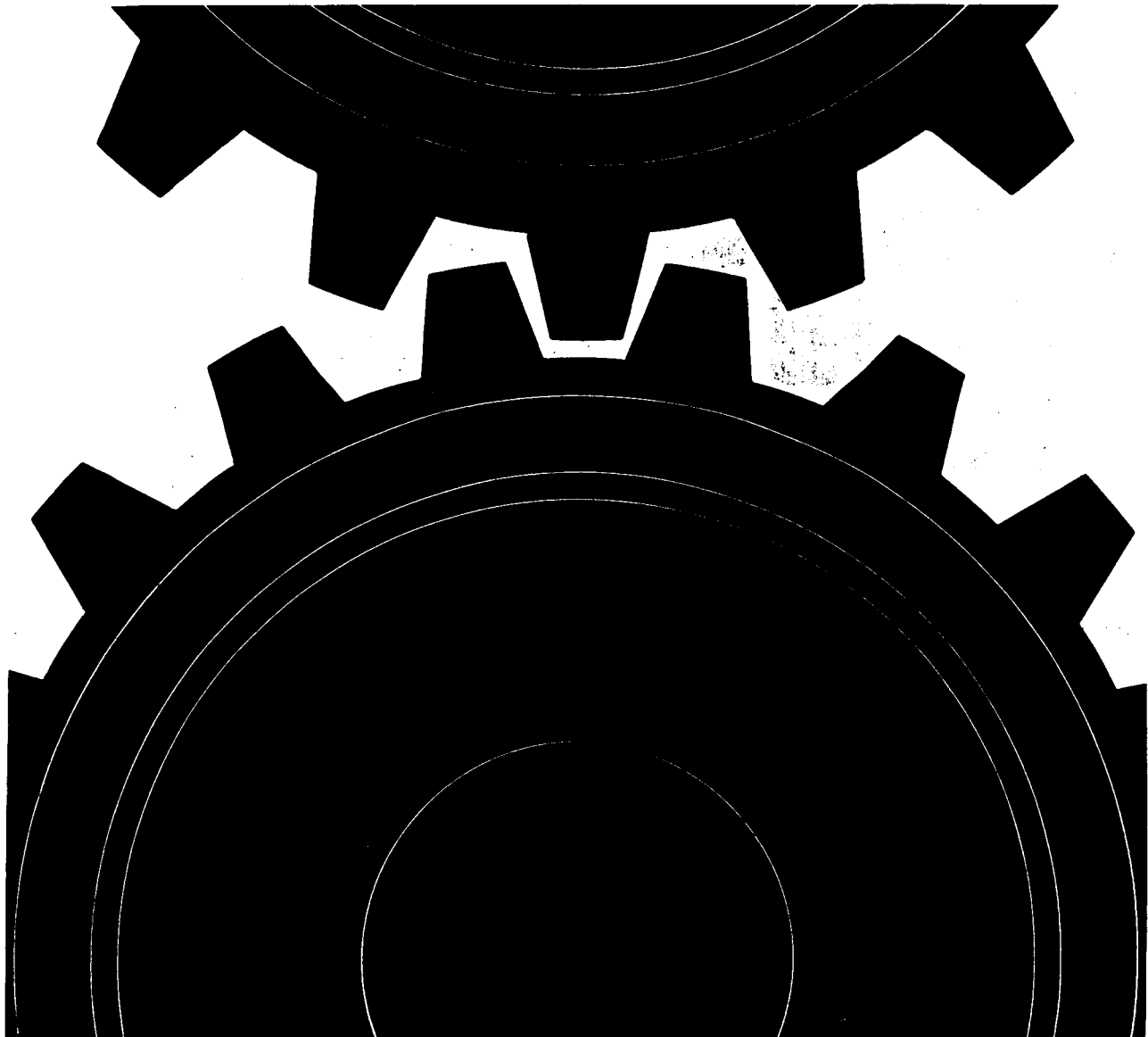


Table 1. Occupational injury and illness incidence rates of total recordable cases for manufacturing industries by employment size and quartile distribution, 1988 —Continued

Industry, SIC code, ¹ and employment size	Incidence rates per 100 full-time workers			
	Column A	Column B	Column C	Column D
	Average incidence rates for all establishments: (mean)	One-quarter of the establishments had a rate lower than or equal to: (1st quartile)	One-half of the establishments had a rate lower than or equal to: (median)	Three-fourths of the establishments had a rate lower than or equal to: (3rd quartile)
Electrical industrial apparatus (SIC 362):				
All sizes.....	10.9	.0	5.8	14.9
1 to 19.....	11.4	.0	.0	8.5
20 to 49.....	6.4	.0	3.1	10.8
50 to 99.....	14.5	7.0	15.7	19.5
100 to 249.....	12.6	5.6	9.6	20.5
250 to 499.....	11.8	6.7	11.1	15.6
500 to 999.....	9.2	3.9	6.9	12.4
1,000 to 2,499.....	7.4	(?)	(?)	(?)
2,500 and over.....	14.6	(?)	(?)	(?)
Household appliances (SIC 363):				
All sizes.....	16.2	.0	3.9	16.5
20 to 49.....	6.6	(?)	(?)	(?)
50 to 99.....	14.5	(?)	(?)	(?)
100 to 249.....	15.8	7.6	14.0	22.6
250 to 499.....	16.2	5.8	9.2	28.3
500 to 999.....	15.1	6.4	13.0	23.2
1,000 to 2,499.....	19.4	(?)	(?)	(?)
2,500 and over.....	14.3	(?)	(?)	(?)
Electric lighting and wiring equipment (SIC 364):				
All sizes.....	11.2	.0	1.4	11.6
20 to 49.....	11.0	.0	7.0	17.3
50 to 99.....	12.5	3.1	8.1	16.3
100 to 249.....	14.2	5.7	11.3	20.3
250 to 499.....	12.8	7.0	11.2	17.3
500 to 999.....	9.7	4.8	7.9	12.3
1,000 to 2,499.....	10.1	(?)	(?)	(?)
Radio and tv receiving equipment (SIC 365):				
All sizes.....	9.2	.0	.0	.0
50 to 99.....	6.9	(?)	(?)	(?)
100 to 249.....	14.6	(?)	(?)	(?)
250 to 499.....	9.1	(?)	(?)	(?)
500 to 999.....	12.0	(?)	(?)	(?)
1,000 to 2,499.....	11.2	(?)	(?)	(?)
Communication equipment (SIC 366):				
All sizes.....	4.2	.0	1.7	7.0
1 to 19.....	3.5	.0	.0	.0
50 to 99.....	4.9	.0	2.2	8.0
100 to 249.....	5.9	1.9	4.5	9.8
250 to 499.....	6.2	2.7	4.7	8.6
500 to 999.....	4.8	2.0	4.1	7.8
1,000 to 2,499.....	4.1	1.7	2.5	4.5
2,500 and over.....	3.4	1.7	2.5	5.6
Electronic components and accessories (SIC 367):				
All sizes.....	6.1	.0	.0	6.9
20 to 49.....	7.4	.0	1.9	12.6
50 to 99.....	5.4	.0	3.8	8.9
100 to 249.....	8.2	3.3	6.5	12.1
250 to 499.....	8.4	3.3	6.5	12.5
500 to 999.....	6.2	3.4	5.8	8.4
1,000 to 2,499.....	5.4	2.0	4.3	8.2
2,500 and over.....	3.9	(?)	(?)	(?)
Miscellaneous electrical equipment & supplies (SIC 369):				
All sizes.....	12.1	.0	5.5	13.9
20 to 49.....	9.0	.0	6.4	9.5
50 to 99.....	13.1	1.7	8.1	20.3
100 to 249.....	11.9	3.8	8.7	16.2
250 to 499.....	12.9	7.0	11.5	17.6
500 to 999.....	8.9	2.8	5.5	10.8
1,000 to 2,499.....	12.5	(?)	(?)	(?)

See footnotes at end of table.

ENCL
2

Table 1. Occupational injury and illness incidence rates of total recordable cases for manufacturing industries by employment size and quartile distribution, 1988 —Continued

Industry, SIC code, ¹ and employment size	Incidence rates per 100 full-time workers			
	Column A	Column B	Column C	Column D
	Average incidence rates for all establishments: (mean)	One-quarter of the establishments had a rate lower than or equal to: (1st quartile)	One-half of the establishments had a rate lower than or equal to: (median)	Three-fourths of the establishments had a rate lower than or equal to: (3rd quartile)
General industrial machinery (SIC 356):				
All sizes.....	14.2	.0	2.0	16.5
1 to 19.....	5.4	.0	.0	.0
20 to 49.....	15.1	1.6	12.3	23.1
50 to 99.....	18.7	7.2	16.7	26.5
100 to 249.....	17.4	9.2	14.1	24.5
250 to 499.....	12.2	6.6	9.9	17.5
500 to 999.....	11.0	6.9	9.6	13.0
1,000 to 2,499.....	15.2	(²)	(²)	(²)
Office and computing machines (SIC 357):				
All sizes.....	3.9	.0	.5	4.3
1 to 19.....	1.3	.0	.0	.0
20 to 49.....	4.7	.0	.0	10.6
50 to 99.....	4.6	1.4	3.1	10.2
100 to 249.....	4.8	.4	3.3	4.6
250 to 499.....	6.8	1.7	3.6	7.5
500 to 999.....	5.7	2.8	4.0	6.3
1,000 to 2,499.....	4.1	2.0	3.2	5.7
2,500 and over.....	2.7	1.5	2.3	3.6
Refrigeration and service machinery (SIC 358):				
All sizes.....	16.8	.0	.0	14.5
20 to 49.....	14.3	5.7	10.7	19.4
50 to 99.....	17.3	7.6	16.6	25.8
100 to 249.....	20.6	11.3	19.3	28.9
250 to 499.....	16.5	8.5	13.7	21.6
500 to 999.....	17.6	7.3	14.9	22.9
1,000 to 2,499.....	14.3	(²)	(²)	(²)
2,500 and over.....	19.7	(²)	(²)	(²)
Miscellaneous machinery, except electrical (SIC 359):				
All sizes.....	13.1	.0	.0	10.5
1 to 19.....	7.7	.0	.0	.0
20 to 49.....	13.1	.0	7.2	23.0
50 to 99.....	17.8	6.6	14.2	26.9
100 to 249.....	19.1	9.1	16.9	27.5
250 to 499.....	15.2	7.0	12.5	21.2
500 to 999.....	14.3	(²)	(²)	(²)
1,000 to 2,499.....	15.4	(²)	(²)	(²)
Electric and electronic equipment (SIC 36):				
All sizes.....	8.0	.0	.0	9.3
1 to 19.....	3.9	.0	.0	.0
20 to 49.....	6.9	.0	.0	11.1
50 to 99.....	8.7	.0	.0	12.7
100 to 249.....	10.1	3.5	5.6	14.4
250 to 499.....	10.4	4.2	7.8	14.5
500 to 999.....	8.2	3.3	6.5	10.9
1,000 to 2,499.....	7.8	2.2	4.9	9.6
2,500 and over.....	5.4	2.2	4.1	7.6
Electric distributing equipment (SIC 361):				
All sizes.....	10.3	.0	3.7	13.5
1 to 19.....	4.5	.0	.0	5.5
20 to 49.....	7.1	.0	.0	15.6
50 to 99.....	15.8	(²)	(²)	(²)
100 to 249.....	10.6	2.9	7.3	16.6
250 to 499.....	12.7	6.3	11.3	17.6
500 to 999.....	9.7	(²)	(²)	(²)
1,000 to 2,499.....	5.9	(²)	(²)	(²)

See footnotes at end of table.

ENOL

SUBJECT: FEDERAL WAGE SYSTEM REGULAR AND SPECIAL PRODUCTION FACILITATING WAGE RATE SCHEDULES
FOR THE WAGE AREA OF SCRANTON-WILKES BARRE, PENNSYLVANIA

TO: COMMANDING OFFICERS OF MILITARY DEPARTMENTS AND DOD COMPONENT INSTALLATIONS IN THE AREA

THE SCHEDULES SHOWN BELOW HAVE BEEN ESTABLISHED UNDER AUTHORITY OF DOD DIRECTIVE 5120.39, DATED APRIL 24, 1980, SUBJECT TO THE LIMITATIONS CONTAINED IN PUBLIC LAW 103-123, DATED 28 OCTOBER 1993, AND ARE TO BE APPLIED IN ACCORDANCE WITH THE PROVISIONS OF FPM SUPPLEMENT 532-1 TO ALL EMPLOYEES WHOSE OFFICIAL DUTY STATION IS LOCATED WITHIN THE GEOGRAPHIC BOUNDARY OF THE WAGE AREA DEFINITION SHOWN ON THE REVERSE SIDE. THIS SCHEDULE IS APPLICABLE TO DOD EMPLOYEES ONLY AND EXCLUDES ANY BENEFIT DERIVED BY IMPLEMENTATION OF 5 USC 5343(d).

WG WL-WS GRADE	WG-RATES					WL-RATES					WS-WD-WN RATES					WD-WN PAY LEVEL
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
1	8.43	8.77	9.12	9.47	9.84	9.27	9.65	10.03	10.42	10.80	11.91	12.44	12.90	13.41	13.93	
2	8.76	9.13	9.50	9.87	10.23	9.65	10.05	10.44	10.86	11.25	12.27	12.80	13.30	13.80	14.34	
3	9.10	9.47	9.87	10.24	10.64	10.03	10.44	10.86	11.30	11.70	12.61	13.15	13.66	14.19	14.73	1
4	9.46	9.87	10.26	10.66	11.05	10.43	10.87	11.31	11.73	12.17	12.99	13.54	14.08	14.61	15.14	2
5	9.84	10.25	10.66	11.07	11.48	10.84	11.31	11.76	12.21	12.67	13.38	13.94	14.47	15.05	15.61	3
6	10.21	10.64	11.06	11.48	11.92	11.23	11.70	12.19	12.63	13.12	13.73	14.30	14.87	15.46	16.01	4
7	10.58	11.03	11.46	11.90	12.34	11.67	12.17	12.63	13.14	13.62	14.12	14.71	15.29	15.89	16.46	5 1
8	10.96	11.41	11.86	12.31	12.80	12.05	12.55	13.07	13.58	14.10	14.47	15.07	15.67	16.28	16.86	6 2
9	11.36	11.83	12.29	12.79	13.25	12.48	12.99	13.53	14.05	14.54	14.85	15.49	16.12	16.73	17.34	7 3
10	11.70	12.20	12.70	13.17	13.66	12.87	13.41	13.96	14.48	15.02	15.22	15.87	16.47	17.12	17.74	8 4
11	12.10	12.57	13.10	13.61	14.12	13.28	13.83	14.41	14.94	15.51	15.85	16.51	17.17	17.83	18.50	9 5
12	12.46	12.97	13.51	14.02	14.51	13.70	14.26	14.84	15.41	15.98	16.67	17.36	18.04	18.75	19.42	10 6
13	12.83	13.37	13.89	14.44	14.98	14.12	14.71	15.30	15.89	16.46	17.67	18.41	19.16	19.90	20.62	11 7
14	13.18	13.74	14.29	14.84	15.39	14.49	15.12	15.72	16.33	16.94	18.87	19.66	20.45	21.24	22.04	8
15	13.57	14.13	14.70	15.26	15.83	14.90	15.53	16.17	16.77	17.40	20.27	21.13	21.98	22.82	23.66	9
											WS-16	21.87	22.77	23.68	24.58	25.51
											WS-17	23.63	24.62	25.61	26.59	27.57
											WS-18	25.60	26.66	27.73	28.79	29.87
											WS-19	27.74	28.94	30.06	31.23	32.39

Ronald G. Bechtel
RONALD G. BECHTEL
ACTING DIRECTOR
TECHNICAL STAFF

ORDER DATE: 17 AUGUST 1993
EFFECTIVE DATE: THE FIRST DAY OF THE FIRST PAY PERIOD
BEGINNING ON OR AFTER 1 JANUARY 1994
SUPERSEDES SCHEDULE ISSUED 20 OCTOBER 1992

Document Separator

FAX TRANSMITTAL

p. of pages 1

TO: Bernie Starnage FROM: Lemmon
 OFFICE: Trayhena-Safety PHONE: 570-9328
 FAX: 570-8510
 795-6333
 GENERAL SERVICES ADMINISTRATION
 NSM 7540-01-517-7288 5098-101

LOST-TIME CIVILIAN INJURIES

	FY90		FY91		FY92		FY93		FY94	
	CLAIMS RATE STRENGTH	AVERAGE	CLAIMS RATE STRENGTH	AVERAGE	CLAIMS RATE STRENGTH	AVERAGE	CLAIMS RATE STRENGTH	AVERAGE	CLAIMS RATE STRENGTH	AVERAGE
ANAD	121 27.6 4378	98 23.8 4113	134 32.9 4075	157 44.2 3553	191 39.3 3223					
BCAD	70 67.0 1044	43 50.3 853	29 31.5 920	36 41.4 869	54 99.6 542					
CCAD	122 28.9 4212	61 15.1 4050	79 21.3 3709	149 45.4 3281	98 32.2 3040					
ELAD	103 29.2 3524	160 48.5 3301	167 53.2 3137	118 48.0 2457	134 62.7 2137					
SVDA	22 98.2 224	11 51.9 212	17 75.9 224	15 72.8 206	8 46.8 171					
RRAD	293 54.2 5404	187 40.1 4608	160 46.3 3452	193 60.3 3188	188 71.6 2627					
SIAD	30 50.4 593	25 44.0 568	40 53.6 747	39 55.2 707	19 35.4 749					
TOAD	72 519.5 3737	82 23.3 3519	66 19.6 3360	74 24.4 3036	77 27.8 2767					
SEDA	23 26.5 867	35 42.8 818	25 28.8 868	38 64.7 587	15 51.5 291					
TEAD	125 32.8 3815	114 34.6 3299	201 63.1 3188	55 22.7 2425	34 23.0 1481					
PUDA	11 16.4 671	21 38.7 543	28 55.1 508	11 28.2 390	12 45.5 264					
SADA	144 48.9 2940	124 49.4 2510	120 54.9 2188	60 42.1 1424	7 82.4 83					
UDDA	11 48.2 728	1 4.8 209	14 65.1 215	13 68.1 191	4 23.3 172					
TOTAL	1231 35.8 32844	969 36.5 30720	1086 39.5 27474	958 42.1 22768	846 48.2 17549					

CURRENT MAINTENANCE MISSION WORKLOAD

TOTAL PROGRAM	4.358	MILLION MHRS
NEW ORDER BASE	3.333	MILLION MHRS

SOURCE: DESCOM MFM, OPS-29 AND HISTORICAL FILES

PROJECTED MAINTENANCE MISSION WORKLOAD

PROJECTED WORKLOAD (MILLION MHRS)	FY95	FY96	FY97	FY98	FY99	FY00	FY01
	3.333	3.597	3.766	3.722	3.732	3.732	3.732

SOURCE: DESCOM MFM, OPS-29 AND JCSG-DM DATA CALL

CORE STATISTICS

CORE WORKLOAD (MILLION MHRS)	FY95	FY96	FY97	FY98	FY99	FY00	FY01
	2.794	2.794	2.794	2.794	2.794	2.794	2.794

ADJUSTMENTS MADE

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

CORE / TOTAL WORKLOAD STATISTICS FY99

$$\frac{\text{CORE WORKLOAD}}{\text{TOTAL WORKLOAD}} = \frac{2.794 \text{ M MHRS}}{3.732 \text{ M MHRS}} = 75\%$$

MAINTENANCE CAPACITY STATISTICS (MILLION MANHOURS)

DOD STANDARD
MAINTENANCE
CAPACITY

4.633

MAXIMUM
POTENTIAL
CAPACITY

7.606

2 SHIFT CAPACITY
(BASED ON DOD
STANDARD)

8.571

2 SHIFT CAPACITY
(BASED ON MAXIMUM
POTENTIAL CAPACITY)

TBD



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

15% loss between

LOST TIME INCIDENTS PER 200K HOURS

TOBYHANNA ARMY DEPOT	FY92	FY93	FY94
	1.96	2.44	2.78

AVERAGE LABOR HOUR COST

1 OCTOBER 94

WG-11
STEP 3

\$ 13.10

AVERAGE DEPOT SALARY

1 OCTOBER 94

**AVERAGE
SALARY**

\$ 30,045

ACTUAL DEPOT HOUR COST FY-94

**ACTUAL
EXPENSING
RATE
FY94**

\$ 63.36

RATE INCLUDES: SALARIES / WAGES, MISSION OVERHEAD BASE OPERATIONS,ETC.



INDIRECT COST COMPARISONS

INDIRECT
TOTAL

	FY94		FY95		FY96	
TOAD ACTUAL	$\frac{\$ 28.99}{\$ 63.36}$	= 46%		—		—
TOAD BID	$\frac{\$ 28.57}{\$ 63.89}$	= 45%	$\frac{\$ 27.01}{\$ 80.71}$	= 33%	$\frac{\$ 31.29}{\$ 59.95}$	= 52%
LEAD BID	$\frac{\$ 44.90}{\$ 86.36}$	= 52%	$\frac{\$ 43.28}{\$ 98.32}$	= 44%	$\frac{\$ 36.95}{\$ 88.62}$	= 42%

**POSITIVE BUSINESS PERFORMANCE LOWERS TOTAL COST
BUT INCREASES PERCENTAGE!**



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

recommnd use actuals

MAINTENANCE MISSION BID RATES

DEPOT	FY91	FY92	FY93	FY94	FY95	FY96
ANAD	73.04	93.68	83.02	90.47	108.47	83.90
CCAD	88.25	120.49	115.48	122.75	143.82	102.37
LEAD	67.58	81.43	83.07	86.36	98.32	88.62
RRAD	63.05	85.92	81.74	99.91	124.50	93.66
TOAD	42.06	55.04	51.25	63.89	80.71	59.95



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS



MAINTENANCE MISSION BID RATES W / O MATERIAL

DEPOT	FY91	FY92	FY93	FY94	FY95	FY96
ANAD	44.79	52.01	42.17	54.36	73.77	48.16
CCAD	46.70	66.49	99.81	72.97	91.99	59.35
LEAD	52.63	63.82	63.02	65.84	82.08	70.79
RRAD	45.97	60.97	34.70	63.61	92.84	70.83
TOAD	35.48	46.51	42.39	52.46	72.44	49.83



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS



THE REVENUE (BID) RATE

- **LABOR**
 - INCLUDES BASE LABOR, FRINGE BENEFITS AND LEAVE COSTS
- **MATERIAL**
 - MATERIAL COST OF CUSTOMER WORK
- **MISSION OVERHEAD**
 - OVERHEAD COST IN SUPPORT OF THE MISSION
- **GENERAL OVERHEAD**
 - OVERHEAD COST IN SUPPORT OF THE INSTALLATION
- **SURCHARGE**
 - ADJUSTMENTS (PLUS OR MINUS) TO THE RATE FOR VARIOUS REASONS

FROM A FINANCIAL MANAGEMENT POINT OF VIEW

• LABOR

- OPM SETS "WHITE COLLAR" RATES
- AREA SURVEYS SET "BLUE COLLAR" RATES
- INFLUENCED BY ORGANIZATION, STRUCTURE AND AVERAGE GRADE

• MATERIAL

- VARIES WIDELY BY COMMODITY
- INEFFECTIVE COMPARISON

• MISSION OVERHEAD

- VARIES BY INSTALLATION
- FLEXIBILITY TO MANAGE
- GOOD INDICATOR FOR COMPARISON



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

FROM A FINANCIAL MANAGEMENT POINT OF VIEW

- **GENERAL OVERHEAD**

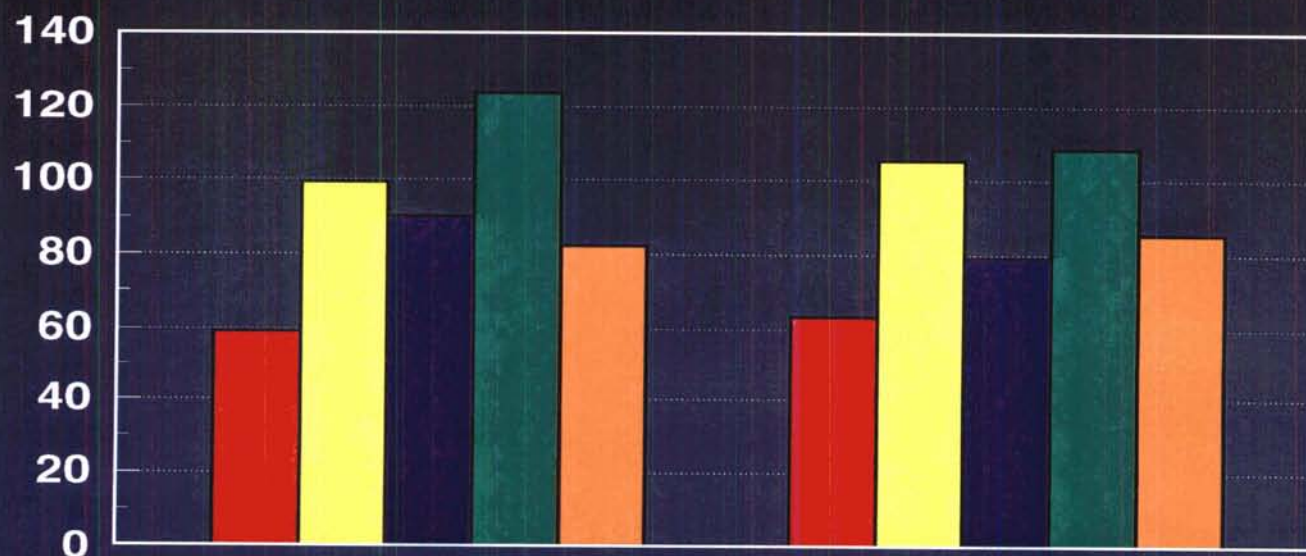
- VARIES BY INSTALLATION
- INFLUENCED BY SIZE AND LAYOUT OF INSTALLATION
- FLEXIBILITY TO MANAGE
- GOOD INDICATOR FOR COMPARISON

- **SURCHARGE**

- SYSTEM-WIDE TO RECOUP OVERALL ISSUES OR BUILD RESERVE FUND (INEFFECTIVE COMPARISON)
- DEPOT UNIQUE TO ABSORB LOCAL GAINS / LOSSES
- DEPOT UNIQUE MINUS (-) INDICATES EFFICIENT PAST MANAGEMENT OF THE FUND

COST PER DIRECT LABOR HOUR

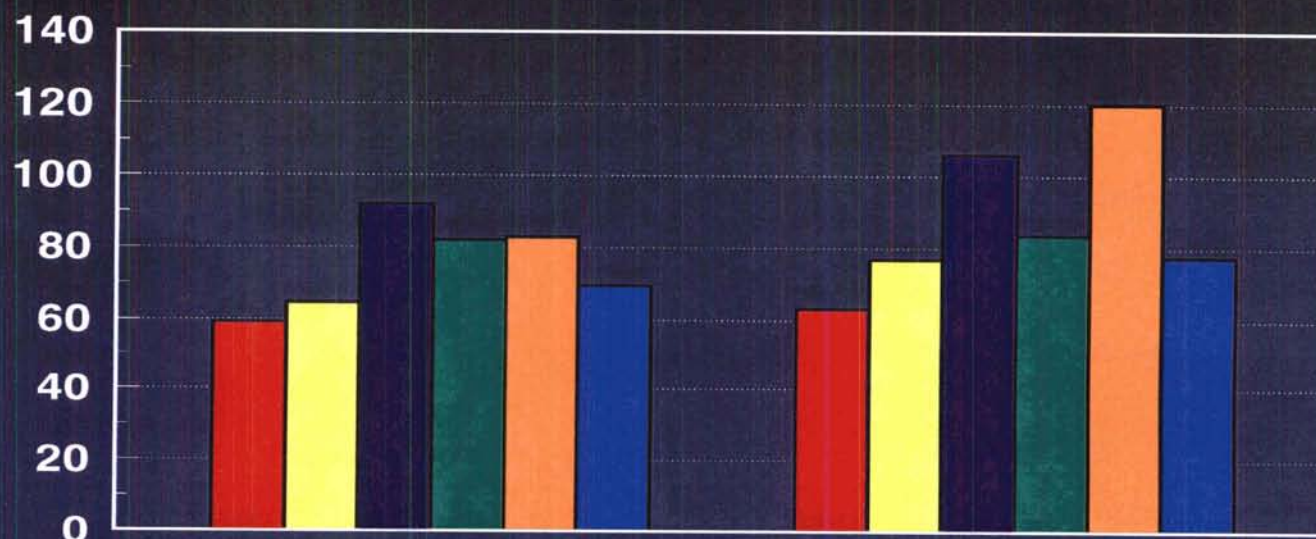
Depot Maintenance Operations Indicators



		FY93	FY94
Tobyhanna		59.33	63.37
Letterkenny		99.34	105.53
Red River		90.14	79.32
Corpus Christi		123.89	108.57
Anniston		82.33	85.63

COST PER DIRECT LABOR HOUR

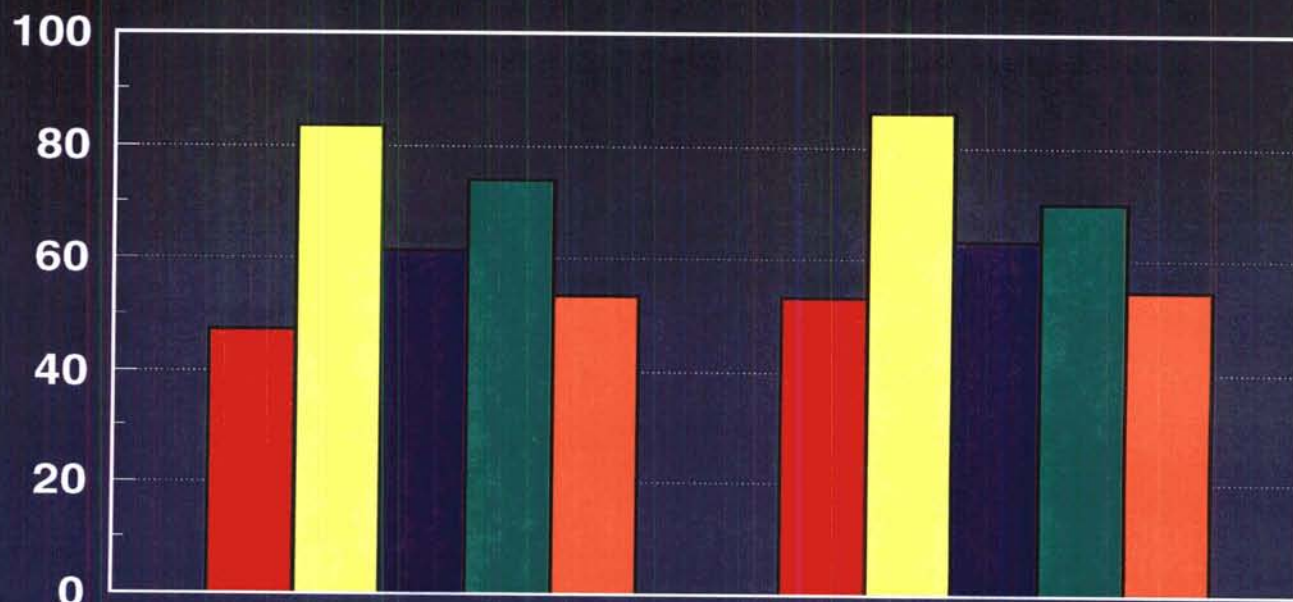
Depot Maintenance Operations Indicators








		FY93	FY94
Tobyhanna	■	59.33	63.37
Ogden	■	64.71	76.88
Oklahoma	■	91.99	106.20
SM ALC	■	82.03	83.60
San Antonio	■	82.90	120.24
Warner Robins	■	69.33	77.49

COST PER DIRECT LABOR HOUR LESS MATERIAL

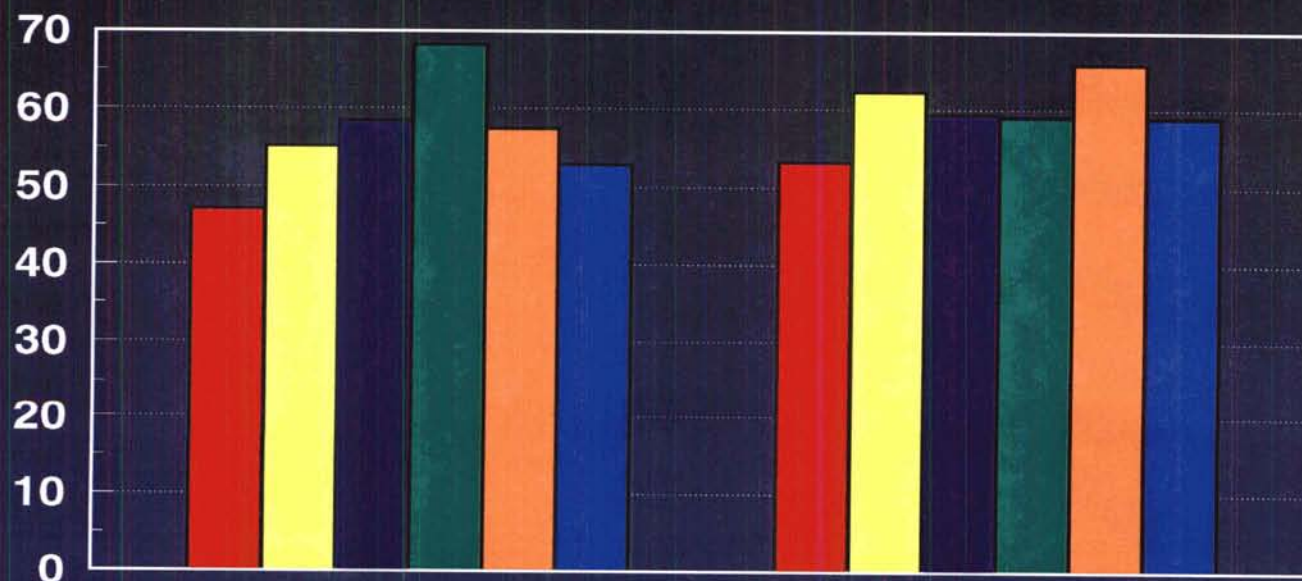
Depot Maintenance Operations Indicators



		FY93	FY94
Tobyhanna		47.22	53.26
Letterkenny		83.54	86.16
Red River		61.32	63.25
Corpus Christi		73.91	70.00
Anniston		53.49	54.56

COST PER DIRECT LABOR HOUR LESS MATERIAL

Depot Maintenance Operations Indicators



		FY93	FY94
Tobyhanna	■	47.22	53.26
Ogden	■	55.20	62.32
Oklahoma	■	58.48	59.42
SM ALC	■	68.25	59.14
San Antonio	■	57.53	65.87
Warner Robins	■	52.93	59.03

RATE COMPARISON WITHOUT MATERIAL

	TOAD	LEAD	DELTA
FY96 BID	\$49.83	\$70.79	\$20.96
FY95 BID	\$72.44	\$82.08	\$ 9.64
FY94 BID	\$52.46	\$70.97	\$18.51
FY93 BID	\$42.40	\$63.02	\$20.62

3.732M MHrs X \$20.96 = \$78M Cost Increase Annually

COST COMPARISON

	<u>TOBYHANNA BID RATE</u>	<u>SACRAMENTO ALC SALES RATE</u>
FY92	55.04	64.53
FY93	51.24	73.83
FY94	63.89	73.13
FY95	80.71	93.22
FY96	59.95	93.22 (EST)

COMPARISON

	<u>TOBYHANNA</u> <u>ARMY DEPOT</u>	<u>SACRAMENTO</u> <u>ALC</u>
FY94 ACTUAL HOURLY COST	\$63.37	\$83.60
WAGE GRADE 11-3	\$13.10	\$17.34
AVERAGE SALARY	\$30,045	\$37,000
DIRECT LABOR YIELD (MHRS)	1,632	1,500
BID RATE FY95	\$80.71	\$93.22
BID RATE FY96	\$59.95	\$93.22 (EST)

BRAC 91 PUBLIC TO PUBLIC COMPETITION WORKLOAD SACRAMENTO ARMY DEPOT

COMPETITION GROUP	COMPETITORS	WINNER/\$M
AIRBORNE ELECTRONICS	TOAD vs SM-ALC	TOAD/\$4.6
RADIO	TOAD vs SM-ALC	TOAD/\$5.0
INTELLIGENCE & ELNC WARFARE	TOAD vs SM-ALC	TOAD/\$7.4
WIRE/DATA COM	TOAD vs SM-ALC	TOAD/\$1.4
TMDE/RADIAC	TOAD vs SM-ALC	SM-ALC/\$1.2



TODYMANNA

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS



COSTING INFORMATION

- **LOWEST HOURLY COST OF MAINTENANCE DEPOTS**
- **HIGH MANAGEMENT PRIORITY TO KEEP COST DOWN**
- **VALIDATED BY GAO AND AAA**

**BEST VALUE
FOR THE
TAXPAYER**

WORKLOAD TRANSITIONS

- SEAMLESS
 - HI-TECH CAPABILITY
 - SKILLS IN PLACE
- LOW COST
 - MINIMAL INVESTMENT
 - FACILITIES AND TEST EQUIPMENT IN PLACE
- TRANSPARENT TO THE CUSTOMER
 - COMSEC
 - SAAD AVIONICS - INDICATORS
 - SAAD IEW - TRAILBLAZER

BRAC 91

CLOSURE OF SACRAMENTO ARMY DEPOT

- COMPETITION OF SACRAMENTO WORKLOAD
- PREPARATION OF BID PACKAGES - FY92 THRU FY93
- TOAD WINS 4 OF 5 COMPETITIONS
- ONLY ARMY DEPOT TO WIN

53CG



ARMY DEPOT

ESTABLISHED
1917

PUBLIC TO PUBLIC COMPETITION WORKLOAD SACRAMENTO ARMY DEPOT

COMPETITION GROUP	COMPETITORS	DATE SUBMITTED	AWARD DATE	WINNER/\$M
Airborne Electronics	TOAD vs SM-ALC	1 Aug 92	15 Jan 93	TOAD/\$4.6
Bradley Fighting Veh	RRAD vs SM-ALC	15 Feb 93	2 Aug 93	SM-ALC/\$4.6*
Electro Optics	ANAD vs SM-ALC	15 Apr 93	3 Nov 93	SM-ALC/\$4.8*
Radar	LEAD vs SM-ALC	1 May 93	2 Aug 93	SM-ALC/\$3.5
Radio	TOAD vs SM-ALC	1 June 93	30 Sept 93	TOAD/\$5.0
Gyro/Indicators	CCAD vs SM-ALC	1 July 93	1 Oct 93	SM-ALC/\$1.3*
Intelligence & Einc Warfare	TOAD vs SM-ALC	2 Aug 93	17 Nov 93	TOAD/\$7.4
TMDE/Radiac	TOAD vs SM-ALC	1 Sept 93	17 Dec 93	SM-ALC/\$1.2
Wire/DATA COM	TOAD vs SM-ALC	1 Oct 93	17 Dec 93	TOAD/\$1.4

* SOURCE: GAO AUDIT



ARMY DEPOT

ESTABLISHED
1917

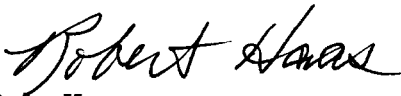
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Ann and Glenn,

Enclosed is the recent Coopers and Lybrand Audit of Depot Maintenance Competitions prepared for the Deputy Under Secretary of Defense (Logistics).

It is telltale of our excellent business posture and our having rates much lower than other DOD depots. This is one of many reasons Mr. Klugh told Jim Owsley and the rest of the "Cross Service Team" that Tobyhanna is "the best depot."

Any questions, please call DSN 795-6335 or Commercial (717) 895-6335.


Bob Haas
Tobyhanna Army Depot

Document Separator

POINT PAPER
COOPERS AND LYBRAND

SUBJECT: Coopers & Lybrand, Depot Maintenance Public Versus Private Competition Report, March 1995

1. PURPOSE: To provide information on why Tobyhanna Army Depot is rated the most cost efficient depot within the Army and The DOD.

2. FACTS:

BACKGROUND:

- o Coopers & Lybrand conducted an extensive review of policies, procedures, and practices employed by 6 DOD Depots, two from each service, engaged in public vs. private competition to determine if the playing field was level regarding cost estimating and financial accounting systems integrity.
- o The 6 maintenance depots reviewed were: Tobyhanna Army Depot, Anniston Army Depot, Ogden ALC, Warner Robins ALC, Norfolk Naval Shipyard, and the Naval Aviation Depot Jacksonville.

COOPERS & LYBRAND'S OBSERVATIONS WERE:

- o Tobyhanna's approach to competition was thorough, professional and well documented. *pg 10*
- o Tobyhanna's proposal was based on well documented cost and pricing data, labor hours were supported by detail operations, and estimating practices and techniques were current and compared favorably with private industry; further, Tobyhanna's estimating procedures were the best of the public depot's reviewed. *pg 4*
- o The timeliness and high quality of Tobyhanna's performance of the RT-524 contract is impressive. The depot's management of materiel ordering, use and costs throughout the contract was excellent. *pg 3*
- o The timeliness and high quality of Tobyhanna's performance of the RT-524 contract is impressive. The depot's management of materiel ordering, use and costs throughout the contract was excellent. *pg 7*

COOPERS & LYBRAND'S CONCLUSIONS WERE:

- o There were significant differences observed between depots in estimating and accounting for costs, the Tobyhanna Army Depot was the "only" depot that approached regulatory compliance and sound business practices that we considered comparable to a private firm. *pg 7*
- o In performance, Tobyhanna Army Depot personnel demonstrated an excellent understanding of cost accounting. *pg 10*

C/IRAC
Q

Depot Maintenance Public Versus Private Competition

Report

**Prepared for
Deputy Under Secretary of Defense
(Logistics)**

March 1995

**Coopers
& Lybrand**

Coopers & Lybrand L.L.P.

a professional services firm

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EXECUTIVE SUMMARY

An extensive review was conducted of policies, procedures and practices employed by public maintenance depots in public versus private competition. This included case studies at six maintenance depots, two from each of the Services. The review focused on the public depots since private firms are heavily regulated and were required to assume the risks associated with submission of firm fixed price proposals.

Based on our review, we concluded the practice of competing depot maintenance between public depots and private firms is not fair to the private firms. The playing field is not level considering the following observations:

- Cost Estimating System Integrity. Depot proposals were generally understated significantly. Estimating processes were not disciplined, in most cases deviating substantially from established accounting practices and historical data, without documented support. Since a depot's proposal is analogous to a cost type offer, without effective internal controls at the depots, a fair comparison cannot be made with the firm fixed price offer of a private firm.
- Financial Accounting System Integrity. Observed mischarging and misallocation of costs raises serious questions on the accuracy of depot records. Incurred cost reports often do not provide an accurate accounting of performance at the program or project level. Depot accounting records should be the basis for subsequent proposals, in that proposed improvements and performance should be measurable. The accounting records are also used to report financial performance to management.
- Source Selection Procedures. For the most part, great care was exercised by government contracting officials to achieve fairness. However, in several cases public depots benefited from actions that provided the depots superior information to potential private competitors. We do not believe these advantages directly affected the selection results in the cases reviewed.
- Cost Comparability. While the depot maintenance Cost Comparability Handbook (CCH) provides comprehensive policy and procedures that address categories of costs and comparisons between public depots and private firms, its implementation was found to be inconsistent at the depots and procuring activities.
- Compliance with Accounting Standards. With several exceptions, the DoD Accounting Manual (DoD Instruction 7220.9-M) provides direction to public depots that is similar to the Cost Accounting Standards (CAS) and consistent with Generally Accepted Accounting Principles (GAAP). Nevertheless, basic

accounting for costs at the program and project levels often did not comply with the DoD Accounting Manual, reflecting a lack of training, internal controls and discipline.

- Internal Controls and Audit Scrutiny. Internal controls at the depot maintenance activities were found to be very weak or non-existent. As a result, cost estimating, labor charging and cost allocations were not always documented, consistent or disciplined. Significant improvements can be achieved at public depots by establishing an effective internal controls.

Public versus private competition for depot maintenance has been used by the Services and depot management to create incentives for review of internal depot processes. In preparation for a competition, the depots have reviewed labor standards applicable to the requirement and administrative procedures, including those associated with the allocation of costs. Significant efficiencies were often estimated or planned. Although many of the planned efficiencies have not been achievable in performance, they have tended to lower labor standards which otherwise might have remained overstated. On the other hand, there is little evidence that public versus private competition has created effective incentives for industry to lower prices in the face of public maintenance depot competition beyond which they would in facing other private competitors. Conversely, it is believed that private firms generally perceived the competition with public depots to be unfair. Several private firms believed the competition amounted to a different way of allocating work.

Our review indicates that public maintenance depot estimating and accounting for costs should be improved, with or without future public versus private competition. The public maintenance depot culture needs to change to include cost management as an equal partner to quality and schedule management. The introduction of improved information systems, such as the Depot Maintenance Management Information Systems (DMMIS), and other management tools will help. However, if proper estimating, costing and cost allocations are not performed and monitored through effective internal controls, the potential benefits of improved systems technology will be limited. While the basic business risks between a private firm and a public maintenance depot cannot be equalized to achieve a true level playing field, significant improvements can be made in the short term at public depots to promote a business discipline comparable to private firms.

We do not believe that public versus private competition is an effective means of rationalizing the most efficient producer without first requiring public depots to establish basic business processes and controls. There is clearly substantial excess depot capacity in both the private and public sectors. The market incentives for a private firm to pursue business are reasonably bounded by profit / loss statements, regulatory constraints and risk. The incentives created for a public maintenance depot to fill its unused capacity are substantially unbounded. The establishment of effective internal controls at the public depots will significantly improve their ability to perform within management approved processes and reliably report financial results. Although the financial incentives and risks to a public maintenance depot cannot be made comparable, we believe similar business processes can be achieved.

INTRODUCTION

This report provides the results of a review of public versus private competition for depot maintenance conducted by a Coopers & Lybrand L. L. P. project team from April 1994 to December 1994. Six case studies performed during the review are attached. The review was conducted under the auspices of the Deputy Under Secretary of Defense (Logistics).

The primary tasks encompassed in the review were:

- Determine whether public offerors were including all applicable costs in their competitive proposals.
- Evaluate whether public maintenance depot policies, systems, procedures and practices were adequate to properly account for costs of performance.
- Ascertain whether government policies, procedures and practices affecting public versus private competition were adequate and being implemented uniformly.
- Evaluate the adequacy of the current Cost Comparability Handbook in establishing a "level playing field" for public versus private competition.
- Compare the DoD accounting directives and cost comparability handbook with which public offerors must comply to the Cost Accounting Standards (CAS) and Generally Accepted Accounting Principles (GAAP), applicable to private firms.
- Perform case studies to review specific competitions in which public depots competed.
- Provide recommendations to improve public maintenance depot performance.

The concept of public versus private competition for depot maintenance must be addressed in the context of the broader issues associated with the defense industrial base. The defense industrial base normally describes the private sector capability and capacity to design, develop and produce defense products. The current defense industrial base was sized over the years in response to the DoD's acquisition of weapons systems and products. Major prime defense contractors aggressively acquired capabilities and capacity in the early 1980's, much of it specialized reflecting emphasis on new technologies for state-of-the-art systems, and relatively high peacetime production rates. With the current precipitous decline in the defense procurement budget, excess capabilities and capacity exists in every major product line reviewed. While downsizing is occurring, it appears to substantially trail the budget decline. Industry mergers may accelerate this downsizing in the near term; however, it must be recognized the reductions will be moderated as major defense firms attempt to preserve the capabilities and capacity they determine important to future core business interests. Individual defense contractors want to be

ready for the potential of new business when opportunities in their core competency areas arise. The Department of Defense (DoD) pays the bill for the preservation of capabilities and capacity, as the costs are borne indirectly by current programs.

Below the prime contractor level, the situation is not as clear. With less flexibility to preserve capabilities and capacity without on-going contracts targeted to the resources, there are strong indications that suppliers are exiting the defense market, unable to sustain the capabilities and capacity in their market niches. With technology continuing to change rapidly, often driven by commercial development, many defense subcontractors can only be sustained by refocusing on the commercial market. Those that remain in the defense market are very concerned with their ability to sustain technical teams while defense procurement declines. Whether this observation reflects too many qualified firms chasing too little business, the absence of requirements for which individual firms developed specialized expertise or the decision by prime contractors to increase in-house performance is not clear. There is substantial evidence that defense firms who normally are subcontractors are leaving the market.

Another defense industrial base exists in the public sector. It has also been sized by defense budgets in the early 1980s, when depot maintenance requirements were relatively high, and the need to maintain core capabilities, defined as the skills, facilities and competencies to support essential maintenance requirements of current military strategies. This can entail the maintenance of capabilities that exceed current requirements. New technologies, such as the increased use of composites and integrated systems, also have demanded modernization of public sector capabilities. As operating forces and their equipment are downsized however, the public sector industrial base also suffers from excess capabilities and capacity, with arguably less ability and motivation to downsize aggressively. Much of the public sector downsizing is associated with actions of the Base Realignment and Closure (BRAC) process. During our on-site reviews, it was clear the emphasis at the public maintenance depots was one of each becoming more efficient and competitive for available business. Their interests were to win business from industry and each other, strengthen their posture for BRAC reviews and to continue expanding their high technology skills and capabilities. This motivation has been encouraged over recent years by congressional and management actions.

The depot maintenance business base has been estimated at \$15 billion per year for the past five years.¹ The DoD procurement budget authority is projected at approximately \$40 billion in FY 1996, a 71% decline from 1985 after adjustments for inflation.² Depot maintenance can be a significant contributor to maintaining overall industrial base capabilities. For example, a defense contractor performing at low rate production or out of production on a system can often use its engineering and production skills, production facilities, tooling and test equipment for depot maintenance. DoD has implemented a CORE concept, normally considered to mean that specific public depots will be assigned depot work to sustain skills and capabilities that support contingency related readiness and sustainability requirements. Each Service determines what

¹ Report of the Defense Science Board Task Force on Depot Maintenance Management, April 1994.

² Defense News, US Defense Budget, p. 8, February 13-19, 1995.

programs are essential to be performed in its public depots to maintain CORE capabilities and what depot work will be considered non-core. The Service then determines whether the non-core work will be competed, inter-serviced without competition or allocated to a Service depot consistent with their decision analyses. While these policies may preserve public depot maintenance capabilities, private manufacturing capabilities which may also be critical to the preservation of an industrial base capability, are not considered.

It is believed that depot maintenance requirements will change considerably over the years with the advent of new technologies, software intensive systems and complex integration requirements. The skills associated with these requirements are normally vested in private industry. Many modern weapon systems will be determined as CORE requirements, since they relate directly to Joint Chiefs of Staff (JCS) war fighting capabilities. Extensive investment will be required in public depots to strengthen capabilities involving the new technologies including software integration. If these investments in public depots are made, the capabilities in the defense industry are likely to decline or will have to be maintained through separate sustaining engineering contracts, which will increase costs. Accordingly, we believe consideration should be given to a concept that considers both the private and public capabilities when determining CORE to achieve readiness and sustainability. We believe that depot maintenance is being performed in the private sector now on systems which would be CORE requirements if public depot capabilities existed. Data supports the observation that the private sector will be equally responsive as the public sector to readiness and sustainability requirements under these circumstances. What the DoD likely cannot afford is to maintain two capabilities over extended periods of time; one for design, development and production and a separate capability for depot maintenance, which will result in substantial redundant investment. The leveraging of these requirements could increase efficiencies while maintaining the necessary capabilities in both the public and private sectors at lower costs. A concept of establishing CORE requirements at the Service level and competing non-CORE requirements between public and private, while separately attempting to address industrial base issues, is likely to suboptimize the resulting actions. Original Equipment Manufacturers (OEMs) are most often the subject of industrial base concerns. Although they have been less price competitive for depot maintenance than companies specializing in services, as weapon systems become more complex and computer software intensive, it is likely that the demand for OEM skills will also be required in future depot maintenance.

In the FY 1985 Defense Appropriations Act, Congress initially allowed U.S. Navy shipyards to compete with private shipyards for the overhaul of vessels.³ The concept was expanded in the FY 1993 Defense Appropriations Act, which allowed depot level repair of aircraft, vehicles and vessels to be competed.⁴ This was followed by provisions in the FY 1994 Defense Authorization Act, directing DoD to organize a task force to assess depot workload and capacity. DoD assigned the review to the Defense Science Board which recommended in its April 1994 report that public versus private competition be minimized. Subsequently, the Deputy Secretary of Defense endorsed the report and ordered that public versus private

³ Title II, FY 1985 DoD Appropriations Act, Public Law 98-473.

⁴ FY 1993 DoD Appropriations Act, Public Law 102-396.

competition be discontinued, since a level playing field for the competition was not achievable in the short term.

The Congress apparently did not accept the Defense Science Board assessment or the DoD's position. The FY 1995 Defense Authorization Act included several measures clearly intended to protect the public sector. It reaffirmed that the split of depot maintenance work should be 60/40 for the public sector. The committee also commented that public versus public and public versus private competition should be continued as an incentive for industry to reduce its cost.

Competition is generally recognized as the best market force to obtain innovation and efficiency. Marketplace competition has the players acting freely under few regulatory restrictions that are generally common to all in determining the value of products and services. The defense marketplace is very different. It is highly regulated, with accountability emphasized over productivity and efficiency. The players do not act freely. In the defense market, for price competition to be the vehicle by which the most efficient potential source is determined, the competition must be conducted in a manner that provides each qualified potential competitor an equal opportunity to win or lose. Among other things, this means that the results must be measurable and comparable, with no competitor provided advantages because the procuring agency applied differing evaluation standards. Clearly, there are major differences between private entities, which must comply with complex regulatory requirements as represented by the Federal Acquisition Regulation and the Cost Accounting Standards, and government depots. A commercial company in the defense market is structured to meet the regulatory requirements routinely. Where it fails, it is often subject to fines and penalties. Thus, if anything, private firms in this market have excessive infrastructure to minimize risks. Conversely, public depots are extensions of the federal government, not normally subject to the same regulatory requirements and similar sanctions for non compliance. That is not to say that public entities can operate as they wish. They cannot, in that they are required to comply with administrative requirements imposed by DoD, superiors in the chain of command and federal, state and local authorities. The public maintenance depots are also structured to comply with the requirements applicable to them. However, from a business standpoint, there are major differences between the public and private sector requirements, especially with respect to the rules associated with non compliance. This review will attempt to identify and discuss those differences and to determine whether the differences can be mitigated through administrative actions by DoD, should public versus private competition be reinitiated.

It has been reported and can be observed that public maintenance depots have adopted some private sector business practices. Reduced cycle times, the elimination of non-value added processes and project streamlining have been addressed to some extent by nearly all of the depots reviewed. These concepts are very important to achieve economies; however, they cannot be independent of sound, disciplined and verifiable basic business estimates, accounting and control practices. The introduction of improved automated systems offers the potential of significant improvements in depot business management. This potential will be fully realized only if the cultural change to a controlled business environment is achieved. This will require training,

establishment of effective internal controls and routine monitoring of performance within the control processes.

The observations in this report were not applicable to every depot maintenance activity reviewed. The case studies address the depots individually. ~~There were significant differences observed between depots in estimating and accounting for costs.~~ The Tobyhanna Army Depot was the only depot that approached regulatory compliance and sound business practices that we considered comparable to a private firm.

It is also worthy to note that the case studies involved the review of public maintenance depot actions related to competitions conducted relatively early in the evolution of the public versus private competition program. Most of the public maintenance depots had little experience in competing against private firms or each other when these competitions took place or in managing performance and costs by contract. We observed significant improvements in business practices that were introduced subsequent to the competitions reviewed.

CONDUCTING PUBLIC VERSUS PRIVATE COMPETITION

All of the competitions reviewed were conducted on a firm fixed price basis. In most cases, the requiring/procuring activity was separate from the depot competing for the work. There was one exception to this, where the public depot internally separated its buyer team from a seller team and served as the procuring activity as well as the offeror in the competition.

The process by which the selections were conducted were both formal and informal. A formal source selection involves the appointment of a Source Selection Authority (SSA), and establishment of Source Selection Advisory Councils (SSAC) and Source Selection Evaluation Boards (SSEBs). The informal process involves a contracting officer who follows the command's internal procedures, seeking technical, legal and other assistance as required. The contracting officer's actions are often followed by either a board or supervisor review.

It was evident that each procuring activity attempted to conduct the competitions fairly. Contracting officers were sensitive to the potential of criticism that, as government employees, they may have a preference to a public offeror, especially one with a history of working closely with the procuring activity. Our review of documentation and interviews with personnel led the team to conclude that procurement officials and contracting officers did maintain an unbiased perspective in the selection process. We believe the perception of bias in the selection process was greatest in the single case where a depot was both the procuring and competing activity. Although we believe the integrity of the competition and source selection process was maintained even in that case, the headquarters command subsequently directed that competitions and sources selections could not be conducted by a depot maintenance activity that was also competing on the requirement. We believe this change was appropriate.

The concept of fairness, where each qualified potential competitor is provided an equal opportunity to win or lose, conflicts with the following observations that appear to favor public offerors:

- In one case, the public offeror was provided advance notice in correspondence that a requirement would be competed approximately three months prior to it being announced in the Commerce Business Daily (CBD), the first public notification to industry. This provided the public offeror substantially more time to prepare its offer than its private competitors. Although the notification was clearly not intended to provide competitive advantage, it did allow the depot to plan its competitive approach. In this specific case, we do not believe it had any impact on the outcome of the competition.
- There was language in several solicitations that could be considered incomplete or ambiguous. A review of the offers in one competition indicates that only the public offeror knew what was desired. Private offers did not reflect a similar understanding of the requirement. Although discussions and best and final offers

(BAFOs) were conducted, the inconsistencies were not addressed. The significance of this problem is likely to be greatest where requirements were allocated to depots historically but now they were being competed and the statement of work or specification does not thoroughly describe the full requirement. This situation was observed where the historical depot prepared the statement of work.

- Opportunities were provided for public depots to work on prototypes and trial installations prior to and during competitions. Though some of these actions were initiated prior to the decision to compete the requirement, nevertheless, it provided the depot practical hands-on experience in validating the technical specifications and the planned processes. This information affected the proposed pricing. Competitors, without similar opportunities, were disadvantaged.
- Solicitation requirements that allow a depot offeror to charge common costs to another project on other than a causal/beneficial relationship violates Federal Acquisition Regulation and Cost Accounting Standards and is unfair. Each requirement must be evaluated on its own merits bearing full costs. In the case observed, private firms did not have similar opportunities in that they did not have other projects to which common costs could be charged. Even if they had, direction to improperly allocate costs would be a violation of regulatory requirements.

The management of a competitive process is very important to achieving both a real and perceived sense of fairness. This is especially the case in public versus private competition. Working level personnel were very conscious of this issue and handled themselves well, albeit that some actions noted above did provide advantages to public offerors. The selections to date have essentially been based on low price among technically acceptable offerors. This selection process will become more complex if "best value" concepts are implemented in future public versus private competition. Under "best value", any number of factors in addition to price, such as past performance, managing subcontractors and quality history are evaluated. In the case of public versus private competition with widely disparate methods for collecting historical data, the evaluation process will be very difficult and will demand unusual discretion on the part of a source selection authority or contracting officer in making an award decision. If competition is reinstituted, where "best value" is used, care should to be taken to rationalize the process of measuring and comparing factors other than price before it is employed.

DEPOT ESTIMATING PROCESSES

A comparison of successful depot offers with subsequent performance indicates that the depots substantially underestimated the costs of the maintenance. This is exemplified by the following findings:

- At several depots, DCAA reports disclosed the reliability of the depot cost estimates was far below those submitted by most private firms. The estimate and the supporting documentation were considered seriously flawed and deemed inadequate. After a DCAA review, one depot nearly doubled its proposed overhead cost estimates. In the same case, our review disclosed that the labor hours proposed were more than 50% lower than prior experience on identical work. The depot contended the estimated hours were based on a Total Quality Management review. The only documentation of this review was a few notes and papers maintained by one of the employees. The depot won this competition. In an effort to compare proposed hours with actual hours on the program, we found extensive mischarging. The reliability of recorded costs was suspect. A comparison of estimates with recorded actuals became meaningless.
- Another depot used an estimating practice in which the depot reduced its estimated overhead rates by assuming it would be 100% successful in acquiring new business through future public versus private competitions. The inclusion of new work, not included in its DoD budgeted rates, served the purpose of lowering overhead cost estimates by spreading the costs over a larger labor hour base.
- The initial offer from another depot was approximately 40% lower than the price at which it won the award. Changes to the initial offer were made when data and assumptions were questioned by DCAA. The labor hours and indirect expense rates proposed were significantly lower than historical experience. The depot is currently overrunning the contract in performance. The overrun would have been 40% higher if the initial depot estimates were accepted.

We believe the public maintenance depots consistent practice of underestimating costs reflects the pressures to win, thus preserving jobs, without real risk of economic loss. Management involvement in reviewing estimates varied considerably between depots. In the private sector, accountability for estimates that risk future financial loss to the organization is normally clearly established. This usually results in greater estimating accuracy.

COST ESTIMATING SYSTEMS

Defense acquisition is performed under a complex array of laws and regulations. To maintain public accountability, numerous oversight mechanisms exist to verify contractor compliance. Non-compliance can have significant impacts on contractors. The result is that defense contractors are required to establish and maintain a business infrastructure, processes and practices that achieve compliance. For the purpose of illustration, the chart below includes fundamental requirements that private firms must satisfy:

Chart I

<u>System</u>	<u>Reference</u>
Cost Estimating System	DFARS 215.811-70
Purchasing Systems	FAR Parts 15 & 44, DFARS Appendix C
Material Management System	DFARS 242.72
Property Administration	FAR Part 45
Cost, Schedule and Control System	DFARS 234.005-70
Audit Standards	FAR 15-106.2
Cost Accounting Standards	FAR Appendix B, Title 48 CFR 99
Cost Principles	FAR Part 31, DFARS Part 213
Contract Modifications	FAR Part 43

These requirements are intended to allow a government contracting officer to evaluate the cost type offer of a private firm with confidence that a norm or acceptable system standard is being achieved. If, as sometimes occurs, it is subsequently uncovered that a private offeror did not follow its approved systems, sanctions may be levied. In order to operate with reasonable confidence, contractors establish a business infrastructure, processes, procedures and checks/balances to minimize the risks of non-compliance. As government has considered acquisition streamlining, the cost premium associated with DoD regulatory compliance has been calculated at between 13% and 50% in various studies with the most recent study indicating the regulatory cost premium at 18% of contractor's value added costs.⁵

Our review found that public offerors do not meet the same or even similar basic business requirements. In every case reviewed, the estimates developed for the public versus private competition were developed differently than estimates for budgets or non-competitive work. Historical data was not used for projection purposes, but only periodically as a comparative benchmark. In several cases, a new profit center was established and the estimate was made by a

⁵ Coopers & Lybrand and TASC: The DoD Regulatory Cost Premium: A Quantitative Assessment December 1994

bottoms-up review of labor hours and other costs associated with the product or product lines. Professional judgment was relied upon extensively. Estimating systems or processes comparable to those required of private firms were found only in a single case. The threat that a competitive loss could translate into downsizing, closure or lost jobs strongly influenced depot offers.

These observations are not intended to indicate that the requirements imposed on the private sector are essential to achieve reasonable estimates and pricing. Some of the private sector requirements add significant costs with questionable benefits. The intent of the Acquisition Streamlining Act of 1994 is to reduce non-value added requirements on industry. Therefore, we do not believe that public maintenance depots need be subject to the same requirements as industry. However, whether public versus private competition is reinstituted or not, public depots should have a documented estimating system that is followed consistently. Maintenance depots clearly do not place much credence in their established standards, since in the face of competition these standards were reduced substantially. In performance, the estimates used in creating offers are not being achieved but it appears that in each case labor hours will be lower than established standards used for budgeting and non competitive business. To the extent that standards are used for budgeting and the pricing of non-competitive business, yet are decremented substantially for competitive purposes, one can conclude that either the standards are overstated or that the motivation to "buy in" is great. Our review indicates both observations are true in most cases.

FINANCIAL ACCOUNTING SYSTEM INTEGRITY

Public maintenance depot accounting systems should reliably collect and record incurred costs. Accurate costing is necessary since usually the most reliable indicator of future cost performance is prior cost history. This is particularly true for maintenance work since it has not been subject to volatile changes in processes, procedures or practices that invalidate past techniques and operations. Thus, prior history on identical or similar maintenance efforts should be the starting baseline for all depot estimates.

If depot executives are to be held responsible and accountable for performance against estimated prices, the depot accounting system must produce accurate and reliable cost data. If it does not, such performance cannot be properly assessed, and management is not being properly held accountable for its actions in estimating and performing work. Our studies disclosed that depot cost accounting systems cannot be relied upon to accurately reflect incurred costs on a project. There is a proclivity to blame outdated hardware and complex, patched software for the problem. We believe the cause is first and foremost a cultural and procedural problem of proper charging and allocating costs. We observed significant labor mischarging that had the effect of understating costs on competed contracts. We believe these costing irregularities stem from the following observations:

- The depot culture does not emphasize accurate accounting for costs by contract or project. Timely deliveries and quality have been emphasized historically.
- Internal controls are not effective. An internal control system should document the accounting system and all relevant policies, procedures and practices that pertain to the depot's ability to record, process and report cost and financial information in compliance with regulatory and command requirements.
- Labor charging practices in many cases lack the basic requirement of individual employee involvement. Too often the supervisor or planners control labor charging.
- The depots have created, perhaps inadvertently, greater incentives for performance to approximate that which was proposed than the accurate accounting for performance.
- Depot project or program employees and managers often did not understand the importance of accurately accounting for costs. In many cases, employees justified their non-involvement in accounting for costs, indicating the responsibility for cost integrity is an accounting function.

At all of the maintenance depots visited, a direct labor hour base was used to allocate overhead. Therefore, when labor hours are incorrectly classified, the error is compounded

because in addition to the related direct labor, applicable overhead is likewise incorrectly costed. Our conclusions regarding the unreliability of the accounting records are supported by the following observations:

- We found that supervisors and lead people in the shops were mischarging labor on a competitively awarded program in order to meet depot imposed standards. Once the total standard labor hours were reached, hours were mischarged to other work in the shops to avoid overrunning the standards. The labor was mostly mischarged to non competitive projects or to an accompanying cost type line item used to reimburse the depot for contract undefined "over and above" maintenance effort. This depot was working on both the firm fixed price and cost type contract line items simultaneously. The contract clearly specified what work was included under the separate line items. The depot was expected to differentiate the separate requirements. We selected one part which was included on the mandatory replacement parts list. Of 171 of these completed parts for the competitive program, labor costs on 69 of the parts were mischarged to the cost reimbursement line item, thereby inappropriately understating the true cost of the firm fixed price contract performance.
- Direct labor hours of assigned employees were automatically programmed to be charged to the competed work unless the hours were modified by the supervisor because of employee reassignment to other work. This modification of an employee's time requires an entry to the computer system. During our study of the labor charging, we observed that production employee hours on a competitively awarded program had been reclassified from direct to indirect costs. The effect of this reclassification was that the employees' labor hours were no longer automatically direct charged to the competitive program. We observed employees working on the program, but their time was being charged as indirect costs. We discussed the reclassification with depot supervisors who informed us the reclassification was made because the labor costs on the competitive program were too high as a result of automatic labor charging not being properly monitored. We subsequently found that the reclassified direct production employees were commingled with 17 indirect employees. We were told that the direct employees hours would be reclassified to the direct programs on which they were working. Further, we were assured that all hours for these direct employees would be removed from the indirect cost center at month-end. However, our check of the month-end labor report after the reclassification indicated this was not the case. The labor hours of about 10 of the direct employees remained in the production indirect cost center. Since the cost of the indirect cost center is allocated to all work, most of the labor and related overhead of these production employees, who were physically assigned to and working on the competitive program, were incorrectly charged to the depot's noncompetitive maintenance work.

- Substantial direct labor hours were charged to an indirect training account, thus understating the project cost. In addition, we found that non-project organizations which provided direct benefit to the project were not charging hours to the project. In this case, indirect costs were allocated based on an administrative table, which was not current and did not reflect the existing program organization.
- At another public maintenance depot, it was clear that in establishing a cost center for a competition both direct labor and indirect costs were estimated aggressively vis-a-vis past history. In attempting to review actual performance, cost collection program problems precluded the evaluation of direct program vs. over and above costs. Clearly, the depot had a responsibility to demonstrate proper charging of costs, which it was unable to do.

Effective internal controls are in operation within private industry to prevent mischarging from occurring on government contracts. Manipulations to hide cost overruns or to meet budgets should not be tolerated. The resultant distorted cost experience, if used to estimate future work, adds to the severity of the previously addressed problems of properly recording costs.

The accounting systems at each of the Services depots are difficult for personnel involved in project or program management to understand and use. The systems have many patches added over the years to satisfy new requirements including those resulting from competition, Defense Business Operations Fund (DBOF) changes and other requirements. Program personnel place great reliance on those in the accounting function for evaluation and interpretation of data. While several new projects such as PDMSS are being tested at individual depots, which will provide more current hardware and software to address system cost issues, improvement will only take place if the employees are trained in the basic concepts of accounting for costs, internal controls are established or strengthened and systems are documented. Though the absence of modern system tools can pose problems; the most state of the art systems will not be effective if controls are not designed and implemented.

Private firms in the defense industry are required to operate and report under guidelines consistent with general accepted accounting principles (GAAP), as are non defense firms. Compliance is reviewed by independent auditors. In addition, defense firms with significant government business are also required to comply with the 19 Cost Accounting Standards (CAS), which regulate the treatment of costs incurred in performing defense contracts. Private defense firms are also required to provide their procedures and practices in a Cost Accounting Disclosure Statement, which is reviewed by the Defense Contract Audit Agency (DCAA) and approved by the cognizant DoD Administrative Contracting Officer (ACO). Changes to disclosed practices must also be reviewed and are accompanied by a cost impact statement.

Public depots are required to comply with the DoD Accounting Manual, DoD Instruction 7220.9M. The manual requires procedures and practices conceptually similar to CAS, with several exceptions. Unlike the case where private firms are reviewed by independent auditors with regard to compliance with GAAP and DCAA with regard to CAS and other regulatory requirements, we are not aware of similar maintenance depot reviews. We found the depots

generally do not comply with CAS as implemented in the DoD Accounting Manual, at least at the program or project levels. We found a wide inconsistency in estimating and accounting for costs within depots, depending upon whether the project was competitive or non-competitive.

The most common thread between maintenance depots was the action to establish a separate organization, a new cost center for major competitive projects. This was done to reduce costs allocated to the project, because the use of existing standards or administrative procedures for the same or similar non-competitive work would reduce their competitiveness. Where the new cost centers were established, our review indicates in every case that other programs were subsidizing the newly created cost centers, thus understating the competitive price and cost of performance while overstating the cost of other depot work. In our opinion, this distortion was significant on those projects reviewed.

While private firms also periodically establish new or separate cost centers for projects or contracts, often to reduce indirect costs, the separate cost centers must continue to receive allocated costs on a causal/beneficial relationship and are reviewed closely by the government. In many cases the separate cost centers are "off-site" and can be clearly separated from the existing cost centers. It is unusual for a private firm to create a separate cost center for a contract within their primary production facility. Generally, there is no benefit to be derived since the program will require allocation of costs on a causal or beneficial basis consistent with the approved accounting system.

We believe the practice of creating separate cost centers for competitive contracts or projects creates some of the accounting and internal control problems. If substantive efficiencies can be created, they should be employed on the non-competitive work as well. The creation of a separate cost center for a project or contract tends to result in administrative changes vice production efficiencies that will be sustained.

INTERNAL CONTROLS AND AUDIT SCRUTINY

For the purpose of this report, internal controls are the processes by which management establishes reasonable assurance that the following objectives are achieved:

- effective and efficient operations within control parameters;
- compliance with regulatory and command requirements;
- reliability of production and financial reporting; and
- routine on-going self assessments.

Our study focused on those internal controls required to obtain accurate accounting information and reliable cost and pricing data. The substantive estimating and costing problems previously commented upon in our report stem from the fact that depots do not have adequate internal controls and oversight reviews. These internal control deficiencies and inadequate oversight reviews impact not only the accuracy and reliability of the accounting records, but also, where such recorded costs are used to propose or budget future efforts, the accuracy and reliability of future estimates, competitive or non competitive. The absence of effective internal controls over job order costing has evolved because depots have traditionally emphasized quality products and project schedules. Job order costing was of secondary importance and not considered a critical mission requirement. Thus, it has not received the attention it would have if the management of cost were an integral part of the depot mission with estimating and costing integrity appropriately emphasized.

The maintenance depot environment is substantively different than that within the private sector. Within the private sector, effective internal controls have evolved partly because they are needed to survive financially and partly because the government, through regulation and oversight, has insisted on sound controls over government contract costing practices. Therefore, within industry significant effort is devoted to developing and refining internal controls, continuously monitoring them through internal and external audit staffs, and modifying them based on audit feedback. In addition, the need for sound controls was accentuated due to the government's emphasis on fraud prevention and prosecution of "white collar" crime. Criminal investigations and prosecutions are costly and are irreparably harmful to the corporate image. Therefore, industry is sensitive to the need to prevent practices that cause inaccurate costing and that might be perceived as fraudulent. There are significant costs associated with government mandated internal controls. Some will argue the requirements are excessive and that, if contractors were provided greater discretion, more efficient and effective controls could be established and maintained at lower costs to the government. Nevertheless, regulatory requirements remain prescribed.

In contrast to industry, internal controls relative to cost performance at the contract and project level at the depots were found to be non-existent or very weak, exemplified by the following:

- We observed numerous examples where employees did not certify their time charges and were uninformed as to how management was charging their time to jobs. The absence of employee attestation of time charges and their lack of knowledge as to how their time was charged represents a serious internal control weakness. The likelihood of managerial or supervisory time manipulations are substantially reduced when there is employee involvement in the timekeeping, because the risk of such manipulations being exposed and detected are increased.
- At one depot an administrative table is in operation to define what indirect cost centers will be charged to which contracts. We found that changes were made to the table without management knowledge or approval. The table is controlled informally. There did not appear to be any management oversight as to when changes should be effected. Observed instances of failure to charge competitive contracts with their applicable indirect expenses often resulted because of erroneous instructions specified in the administrative table.
- During our interviews with project managers and examination of contract cost data, we noted that depot managers often neither request nor receive accurate program cost information. Information related to scheduling and quality is plentiful, but job order cost control is not considered a high priority. This represents a serious internal control problem since poor visibility and inattention to cost performance hinders prompt identification of "out of pattern" cost trends which may necessitate timely management corrective action.
- We also found instances where there were no written procedures or oversight reviews controlling cost transfers between and among projects. At one depot, we noted supervisors were able to transfer labor charges four weeks after the original labor entry. There were no formal procedures governing cost transfers or any approval process to prevent improper cost transfers. We observed one cost transfer wherein substantive hours charged to a competitive program were transferred to other work three weeks after the original entry with no documentation approving the transaction.

Effective oversight reviews over internal controls and contract costing practices are also critically important. Internal controls can often be circumvented or just ignored. Therefore, periodic reviews are needed to test adherence and provide feedback when compliance failures are encountered. Early detection is needed so that prompt corrective actions can be instituted to ensure costs are correctly charged to contracts. As was the case with internal controls, depots compare unfavorably with industry in the breadth and depth of oversight reviews.

Typically, large government contractors are subjected to numerous audits to identify and correct internal control weaknesses. This includes their own internal audit staffs as well as government auditors and independent firms that are responsible for reviewing accounting systems, compliance with government regulations, accounting standards and internal controls. Maintenance depots receive significantly less audit scrutiny. The internal audit staffs of the

depots we visited were very small, providing little benefit in reviewing the proper estimating, charging or allocation of costs. The DoD internal audit agencies provide an external audit function; however, we could find no evidence of any tests or reviews by them aimed at determining and verifying the accuracy of costs charged to contracts on an on-going basis. An audit agency was reviewing a service program while we were at a depot, the scope and results of which were not provided. DCAA audits appear to be limited to pre-award reviews of proposals. Therefore, the depots have not been subject to the same degree of audit scrutiny as their private industry competitors. We do not suggest that depots should be subjected to comparable levels of review as industry. However, periodic substantive audits focusing on the effectiveness of internal controls would be useful.

Internal controls and audits are common to all private firms. If performed correctly, they can be accomplished by relatively small staffs, using statistical techniques. They provide management critical inputs as to whether functional performance is within ranges of acceptability. The internal control function should not be organized as an adversarial review but solely as an independent group that provides essential feedback to adjust and improve internal processes.

COST ACCOUNTING STANDARDS AND THE DOD ACCOUNTING MANUAL

A thorough review of DoD Instruction 7220.9 M indicates the Accounting Manual guidance is generally consistent with Cost Accounting Standards. The primary chapters dealing with CAS are Chapter 71 (Cost Identification) and Chapter 76 (Special Cost Accounting and Reporting Requirements for Depot Maintenance). The coverage of the Cost Accounting Standards in the DoD Accounting Manual are provided in the following table:

Chart II

<u>Standard</u>	<u>Chapters</u>
401 Consistency in estimating, accumulating and reporting costs	71,76
402 Consistency in allocating costs incurred for the same purpose	71
403 Allocation of home office expense to segments	71
404 Capitalization of tangible assets	31,36,76
405 Accounting for unallowable costs	71
406 Cost accounting period	71
407 Use of standard costs for direct material and direct labor	71,76
408 Accounting for costs of compensated personal absences	26,43,63
409 Depreciation of tangible capital assets	26,31,36,76
410 Allocation of organizational unit G&A expense to final cost objectives	71,76
411 Accounting for acquisition costs of material	34,71,76
412 Composition and measurement of pension costs	26,43,47,63
413 Adjustment and allocation of pension costs	26,43,47,63
414 Cost of money as an element of the cost of facilities capital	26
415 Accounting for the cost of deferred compensation	71
416 Accounting for insurance costs	*
417 Cost of money as an element of the cost of capital assets under construction	26
418 Allocation of direct and indirect costs	71,76
420 Accounting for IR&D and bid & proposal costs	26
* Page 71-19 of the manual states "the United States Government is a self-insuring entity. Consequently, the Cost Accounting Standard, Part 416 is not applicable."	

It is clear, especially in Chapter 76, Special Cost Accounting and Reporting Requirements for Depot Maintenance, that substantial efforts were made in the DoD Accounting Manual to require the depots to account for and report costs consistent with requirements of the Cost Accounting Standards. We noted several areas where the DoD Accounting Manual differed, the major ones as follows:

- The instructions in 76-O, Indirect Costs, generally mirror CAS requirements in CAS 410 and CAS 418. However, the instructions would be very difficult to interpret and implement without a thorough understanding of the applicable standards.
- The procedures in 76-O-7, Overhead Rate Variance requires that estimated overhead rates be applied during the year. The applied overhead account is then used to record over / under absorbed overhead. The instructions also state that a new applied overhead rate should be developed to absorb variances in future periods. This is not in compliance with CAS 406 which requires that variances be charged or credited to jobs worked during the year or the cost accounting period.
- The policies in 76-P-9 are not in compliance with CAS 418 which requires allocation of costs to objectives in reasonable proportion to the beneficial or causal relationships. This section on modification labor provides guidance that direct labor will be charged as modifications only when it is peculiar to the modification process. In other words, where modifications and overhead work is performed concurrently or share common efforts, depots are directed to charge labor costs to overhead and not to prorate the costs between overhead and modification.
- Sections 76-P-15 and 16 provide direction that the cost of "normal" rework to correct defects and spoilage is charged direct. However, "abnormal " efforts expended to correct work, defects, spoilage, etc., should be charged to G&A because they "... do not add value to the work performed but are necessary to bring the work up to stated specifications." CAS 402 and 418 require that the entire cost of rework be accounted for on a consistent basis.
- It is not clear in Chapter 26 what constitutes a home office for a depot. Additional guidance is required for depots or headquarters organizations to reasonably capture home office expenses.

The specific differences between the DoD Accounting Manual and CAS are relatively minor. However, since the guidance is diffused among various chapters in the Manual and is often conceptual in nature, we believe depot personnel without CAS experience would have a difficult time in understanding the requirements. The Manual presumes extensive understanding and familiarity with the Cost Accounting Standards (C.A.S.), which the depot case studies indicate does not exist. Though the Accounting Manual approximates the CAS requirements, execution at the depots departs substantially from the Manual and of course, CAS.

A brief discussion of several CAS requirements provides perspective on the level of CAS compliance in public depots:

CAS 401 - Consistency in Estimating, Accumulating and Reporting

The fundamental requirement of CAS 401 is that a contractor's practices used in estimating cost and pricing a proposal shall be consistent with its cost accounting practices and reporting of costs.

We found that several government depots decided it was necessary to establish separate cost centers in order to compete with private industry. These separate cost centers were established in an effort to achieve reductions in the areas of direct labor, overhead associated with direct labor and general and administrative expenses. In most cases, we found this practice was an estimating technique to reduce the total proposed costs on the proposal in question. The same or similar work was also being performed in other cost centers using different estimating techniques and accounting which violates this standard.

Generally, the segregation of the proposed effort applicable to competitive awards was not followed by establishing a system of equitable cost allocations.

CAS 402 - Consistency in Allocating Costs Incurred for the Same Purpose

The purpose of this standard is to require that each type of cost is allocated only once and only on one basis to any contract or other cost objective. The criteria for determining the allocation of costs to a product, contract or other cost objective should be the same for similar objectives.

This represents an area where each of the government depots that we visited had deficiencies. In their attempts to reduce the total amount proposed on competitive proposals, the depots would often allocate costs on a different basis than they would for the balance of the depot work. Consequently, we found different methods of allocating costs incurred for similar objectives. For example, one depot allocated costs associated with the maintenance of machinery based on square footage except for the competitive cost center, where a separate rate was established and applied on a use basis. In all likelihood, this results in the competitive job receiving a much smaller allocation for like services applicable to similar objectives.

CAS 403 - Allocation of Home Office Expenses to Segments

The purpose of this standard is to establish criteria for allocation of the expenses of a home office to the segments of the organizations based on benefits or causal relationships between such expenses and the receiving segments.

Admittedly, complying with this standard is difficult for government depots. This stems from the fact that government headquarters organizations are not accustomed to charge depots directly based on a causal relationship. Nevertheless, private industry must comply with this standard. We found that each depot received an allocation of headquarters costs with two exceptions. While we did not perform a specific review of these costs, it is apparent that the amount allocated represents only a portion of that which we believe should be allocated. In several cases, the amounts were nominal.

This standard also applies to the allocation of base support costs. The requirement is that a measurable allocation base be used. For example, at a depot we found fire protection allocated based on square footage, which is appropriate, while other support costs were negotiated without any measurable base, which would not be compliant.

CAS 405 - Accounting for Unallowable Costs

This standard establishes guidelines for identifying costs specifically described as unallowable in the FAR.

It is recognized that government maintenance depots are not faced with all of the cost elements that are identified as specifically unallowable in the FAR, e.g., bad debt expenses. However, we know that government depots incur costs that would be unallowable to a private firm, such as organization costs.

Based on our reviews, these types of expenses are not currently identified or captured as unallowable costs. This is clearly a standard that cannot be readily applied to a depot in that, if the depot incurs costs they are reimbursed through one appropriation or another.

CAS 410 - Allocation of Business Unit General and Administration Expenses to Final Cost Objectives

These expenses represent the cost of management and administration of the business unit as a whole. The standard requires that the G&A pool of expenses be allocated to final cost objectives by means of a cost input base representing the total activity of the business unit.

The government maintenance depots that we visited used direct labor hours as a base for allocating business unit G&A. Consequently, the depots are not using a cost input base as prescribed by the standard. Direct labor hours may not produce equitable results.

CAS 418 - Allocation of Direct and Indirect Costs

The purpose of this Cost Accounting Standard is (a) to provide for consistent determination of direct and indirect costs, (b) to provide criteria for the accumulation of indirect costs, including service center and overhead costs, in indirect cost pools, and (c) to provide guidance relating to the selection of allocation measures based on the beneficial or causal relationship between an indirect cost pool and cost objectives.

This standard requires that a business unit shall have a written statement of accounting policies and practices for classifying costs as direct or indirect which shall be consistently applied.

Based on our review, depots do not have formal policies and procedures for classifying costs as either direct or indirect except in the area of labor. This is understandable since military organizations generally do not have a need to classify costs as direct or indirect. However, for comparability purposes in public versus private competitions, this criteria is extremely important.

To compensate for the lack of formal policies and procedures with respect to direct and indirect costs, the depots used informal estimating techniques to classify costs. Generally, these techniques were developed based on what the depots believed would be required to pass reviews by DCAA. In many cases, the estimating techniques were updated based on DCAA comments and recommendations included in the audit reports. While this may satisfy a single requirement, it does not provide a sound base for managing on-going operations.

The above Cost Accounting Standards are cited as examples of the problems observed at the depots. Similar problems were observed in complying with the other standards. Many of these are correctable in conjunction with establishing effective internal controls. The importance of compliance for public maintenance depots is that widely accepted standards of good cost accounting practices would be achieved.

THE COST COMPARABILITY HANDBOOK

The purpose of the Cost Comparability Handbook (CCH) is to standardize procedures among public maintenance depots and to ensure that categories of costs, which may not be uniformly applicable to competitors in public vs. private competition, are addressed to level the playing field. It represents a comprehensive attempt to ensure that costs borne by private firms but not by public depots are imputed in public depots cost estimates. The policies and procedures established in the Manual are sound. It is comprehensive with the following exceptions:

- There is not cost comparability between the maintenance depots and private industry in the treatment of the cost of employee post retirement health benefits. The Financial Accounting Standards Board (FASB) imposed on private industry a requirement that costs of such benefits be estimated and accrued as earned by the employees. Prior to this pronouncement such costs were traditionally expensed as incurred. The FASB required that this be implemented for all fiscal years starting after December 15, 1992. This new requirement has significantly increased the health benefit costs annually expensed against current year operations. The government does not recognize or accrue for these future year costs as does private industry. Depots are also not required to adjust their proposals to include this substantive expense. Therefore, they enjoy an unfair advantage in the accounting treatment accorded this particular expense by the government.
- The CCH allows public maintenance depots to provide estimates of costs at the time of proposal submission, indicating that rates may be independent of those established for budgetary purposes. Similar flexibility would not be allowed private firms if they were proposing on a contract under which they would recover costs. Rather, the private firm would normally be required to use historical data with adjustments to that track record documented and defended. This discourages buy-ins, while providing a disciplined approach to estimating future costs. We believe the public depots should have similar requirements. It would discourage understating costs for competitive procurements, where full recovery of incurred costs would be achieved. It would build into the estimating process a discipline that would be beneficial in establishing "cost realism."
- The CCH states that depots must adhere to the CAS standards contained in the DoD 7220.9 M, the DoD Accounting Manual. As previously mentioned, these are not the same standards as imposed on the private sector. The CCH, in most cases where there are substantive differences between the two sets of standards, will provide for special cost adjustments to compensate for the differences. The CCH does not, however, contain adjustment provisions for differences dealing with CAS standards 404 and 409 which are imposed on the private sector but not on the depots. CAS 404 deals with the dollar level at which assets must be

capitalized, and CAS 409 prescribes how capitalized assets should be depreciated. The requirements of each are significantly different from the capitalization and depreciation policies in force within the DoD. Starting January 1, 1994, within DoD, an asset must exceed \$25,000 before it is capitalized. Within industry, the CAS 404 requirement for capitalization is \$1,500. As a consequence, depots will expense more equipment purchases than will their private competitors. Effective October 1, 1991 the DoD substantially reduced the useful life categories of its assets resulting in a faster write off of the assets. In private industry, CAS 409 mandates that assets be depreciated over their estimated useful lives. This results, in most cases, in assets being written off over a significantly longer period than that prescribed by DoD. Thus, private sector depreciation on like assets will be lower and spread over a longer period. Conversely, at depots, comparable depreciation will be higher and expensed over a shorter period. The DoD depreciation policy applies only to assets acquired after October 1, 1991. Assets acquired prior to that date are being depreciated over periods reasonably comparable to the private sector. As time passes and more and more depot assets fall under the new DoD capitalization and depreciation guidelines, differences in expense recognition will become more pronounced. Therefore, the CCH should be modified to provide special cost adjustments for these depreciation differences.

- In the private sector, contractors meeting Cost Accounting Standards Board (CASB) prescribed dollar thresholds must file disclosure statements detailing their accounting practices. They are also required, when they change these practices, to submit cost impact statements identifying the change's impact on government contracts. This requirement was imposed to preclude accounting changes for the purpose of avoiding contract losses or effecting paper "windfall" profits. We do not believe it is necessary to impose similar disclosure requirements on depots. However, based on observed "creative accounting" cost adjustments and observed accounting misclassifications, the CCH should place restrictions or otherwise inhibit depot accounting changes that impact future recorded costs on contracts. Failure to do so, in our opinion, could encourage depots to effect changes to mask significant cost overruns. If accounting changes are needed and they serve an authentic purpose, the depots should be required, as is private industry, to effect a price adjustment if the change will result in less costs being recorded to the competed contract.

As we found with the Accounting Manual, implementation of the Handbook has been far from uniform among the maintenance depots. One problem is that the base data used to compute cost adjustments were not reliable. Another problem is that a mechanism was not established to validate the data used. The CCH adjustments in most case studies were not compliant with the policy guidance. They ranged from procuring activities waiving the requirement to specific adjustments not being calculated at all in the absence of data.

The large differences in pricing between public maintenance depots and private firms observed in most of the case studies made the cost comparability adjustments irrelevant to the

source selection decisions. However, in one case where pricing was very close, the failure of one procuring activity to apply cost comparability adjustments required by the CCH probably affected the outcome.

CONCLUSIONS

The practice of competing public maintenance depots against private firms and the selection of a winner based on proposed prices is not fair to the private firms. The risks are different and the rules are somewhat disparate. Compliance with regulatory requirements or sound business practices is not established at the public maintenance depots. In each case reviewed, firm fixed prices were requested and proposed for the basic contract requirement. A firm fixed price is intended to place the risk of performance on the offeror. Private firms submitted firm fixed prices and if awarded contracts, are held accountable for performance with the government obligated to pay the contract price only, whatever the cost of performance. The offers of public maintenance depots, while represented as firm fixed prices, are analogous to cost type offers in that all costs of performance will be borne by the government, through one appropriation or another. Private firms must consider business risk in submitting offers. Public maintenance depots recognize the absence of risk, with their offers reflecting a strong tendency to underestimate costs. This would result in losses to a private firm. Public maintenance depots recover these costs. While many actions can be taken to improve public depot accountability and to achieve a more level playing field, the inherent differences between private firms and public depots preclude achieving complete fairness and a level playing field.

Private firms are held responsible for compliance with an extensive number of statutes and regulations intended to achieve accountability in performing government contracts. Non-compliance can result in significant sanctions and penalties. In order to achieve compliance, private firms have established a sizable infrastructure and numerous internal controls. Audits and reviews are performed routinely, both by independent public auditors as well as the Defense Contract Audit Agency. Public maintenance depots are also required to comply with extensive regulatory requirements. The composite guidance provided to public depots approaches that which is required of private firms through the DoD Accounting Manual, the Cost Comparability Handbook, higher headquarters and command directives. However, a major difference exists. Public maintenance depots have little risk associated with non-compliance. The potential of management or administrative sanctions has not generally been effective in creating a culture for disciplined management of costs, in compliance with their regulations. Improved training, management tools, and the creation of effective internal controls are essential first steps in changing the culture.

On the basis of the case studies and our review of policies, procedures and practices applicable to public versus private competition, public depot pricing related to contracts is not reliable. The incentive structure motivates public depots to price optimistically or as they believe necessary to win the contracts. Contract costs are not charged or reported accurately. As a result, the competitions do not necessarily result in award to the most efficient producers. It is appropriate to note however, that a wide disparity between public depots was observed with one public maintenance depot achieving a much higher degree of compliance with sound business practices than others.

We do not believe that the same regulatory requirements that are imposed on private firms are required for public maintenance depots to achieve relative fairness. Private firms are over regulated, where efficiency is impacted by a clear government preference for accountability and uniformity. We believe many private firms could achieve equal levels of accountability with lower costs through regulatory reform. However, from a contract performance standpoint, public depots need to train their personnel and establish basic processes and practices to properly estimate and record costs, with internal controls reemphasized. This would allow depot management to address the real costs of performance in a timely way. This is important, whether public versus private competition is reinstituted or not.

Some may argue that the process of pitting Service maintenance depots against their suppliers in public versus private competition is divisive. It surely can be but we suggest that it probably is no more so than private firms who compete against, team with, or serve as subcontractors to each other on different programs. We believe this argument becomes minimized as a greater degree of fairness is achieved.

The problems observed during public versus private competitions are not generally those of inadequate planning or policy. While the inherent differences relating to risk cannot be fully overcome, we believe that improved business discipline at public depots will improve fairness and can be achieved at minimal cost, making them more comparable to private firms. Without these improvements, it will be very difficult, if not impossible, to determine whether a private firm or a public depot is the most efficient producer on any requirement.

RECOMMENDATIONS

These recommendations combine those that should be addressed if public versus private competition for depot maintenance is reinstituted as well as those that would strengthen public depot capabilities to properly estimate and account for costs in performance on any contract or project.

Policy

- Consideration should be given to industrial base requirements when determining sources of depot repair through processes such as CORE, competition or service allocations. If decisions on the industrial base and CORE depot requirements are separated, multiple duplicative investments to preserve capabilities for different purposes are likely to occur.

Program Management

- Currently program or project personnel appear to have little understanding or contact with the estimating and costing processes. They are very reliant on accounting functional personnel. Consideration should be given to the creation of project support teams to include financial and accounting personnel, co-located and interdependent. The alternative is training for program or project personnel in accounting processes.

Procurement Planning

- Procuring activities and headquarters commands should carefully ensure that public and private offerors receive notification of requirements at the same time. The practice of providing draft solicitations for comment, consistent with the Federal Acquisition Regulation, would tend to equalize notification and opportunities for competitors.
- Prior to further public versus private or public vs. public competition, a pre-award survey should be conducted on public maintenance depots to determine whether systems are in place to properly estimate and account for costs.
- A cost realism analysis should be performed by contracting officers on all depot proposals in line for awards, since these offers are analogous to cost type proposals. At a minimum, major elements of proposed costs should be compared to recorded actuals.

Cost Estimating

- Public maintenance depots should be required to document their cost estimating systems. These systems should be reviewed and tested to ensure that, if followed, all applicable costs are captured and accumulated. The estimating system should be followed when estimating all business, competitive or non-competitive.
- A policy should be considered that would require public maintenance depots to use existing standards as the basis for initial pricing estimates. Deviations from the standards could be proposed but should be specifically justified. We do not believe it is good business to selectively decrement standards for competitive programs without thoroughly documenting the basis for the decrements.
- Separate direct and indirect rates were observed being used for competitive, non-competitive and budget purposes. We believe base rates should be developed that are applicable to all relevant work. A policy requiring this discipline would tend to motivate the creation of permanent improvements and discourage establishment of multiple, unique cost centers for competitive programs only.
- Accountability at public maintenance depots may be increased by requiring senior management to sign offers, creating specific personal accountability for estimating and program execution, in the absence of a profit motive.

Financial Accounting System Integrity

- Provide a training course to key depot personnel on the proper treatment of costs and their allocation consistent with Cost Accounting Standards and the DoD Accounting Manual.
- Document depot procedures for the classification and allocation of indirect costs, requiring that accountability for changes be established at senior management levels.
- In the long term, the DoD Accounting Manual should be made more user friendly by clearly explaining CAS related requirements and consolidating cost accounting guidelines in a single chapter.

Depot Internal Controls

- A model internal control system should be developed for maintenance depots that addresses policies, procedures, and practices to reduce business, financial and accounting risks and achieve regulatory compliance.
- A model internal control system should be provided to each depot and specifically tailored to the unique policies and processes of the individual depots.

- Internal controls staffs should be established at each maintenance depot to perform periodic reviews of timekeeping, estimating, cost charging and cost allocation practices to evaluate the effectiveness of the internal controls.
- Audit procedures should be developed for the use of internal control staffs and training provided in performing the audits.
- An internal control staff should be provided training to test and audit compliance with internal control procedures.

Cost Comparability Handbook

- The CCH should be modified to include comparability cost adjustments for differences between private firms and public depots in accruing and expensing retiree health benefits.
- Adjustments should be made to the CCH guidance to equalize depreciation and asset capitalization practices between the public and private sectors.
- The CCH should preclude public maintenance depots from making accounting changes during performance of contracts without documenting the cost impact to the contract and obtaining written approval from the contracting officer.
- The CCH should require that public maintenance depot estimates be based on depot direct and indirect rates established for budget purposes with proposed adjustments documented.
- Training in executing comparability adjustments should be provided to appropriate depot and procuring activity personnel, if public vs private competition is reinstituted.

RT-524/524A
Receiver Transmitter
Case Study
Tobyhanna Army Depot

**Coopers
& Lybrand**

Coopers & Lybrand L.L.P.

a professional services firm

EXECUTIVE SUMMARY

RT-524/524A RECEIVER-TRANSMITTER

CASE STUDY

RFP DAAB07-91-R-G514 was issued in June 1991 by the U.S. Army Communications-Electronics Command (CECOM) to approximately fifty firms and Tobyhanna Army Depot (TOAD) for the FY92-FY95 RT-524/524A receiver-transmitter overhaul program. TOAD was the Army's exclusive repair depot for the RT-524 with over twenty five years of experience overhauling the system. TOAD would retain a core RT-524 workload regardless of the outcome of the competition. Fixed Prices, including material, were required for the repair of 1,000 units per year with an option for an additional 700 units per year. Award would be made to the lowest priced, technically acceptable offer adjusted for transportation cost differentials. TOAD and four private firms submitted cost and technical proposals in July 1991. The depot was the second low offeror in the initial proposals. A best and final offer (BAFO) was requested in which TOAD displaced the private sector low offer by a margin less than 2%.

CECOM announced the award to TOAD in September 1991 at a total evaluated price of \$15.2M for the four year effort. In making its selection, CECOM chose to waive the use of cost comparability factors for this solicitation, stating that there was not enough time to validate the factors. CECOM did sign a cost comparability certificate on 21 September 1991 stating that comparable estimates of all direct and indirect costs had been received and evaluated. We did not attempt to determine what the adjustments would have been had cost comparability not been waived.¹

The RT-524 agreement was successfully performed by TOAD in FY1992 and FY1993 at minimum quantities or higher. FY1994 quantities were reduced below the contract minimum in recognition of the Army's transition to a new radio, the Single Channel Ground and Airborne Radio System (SINCGARS). The FY1995 option was not to be exercised. In addition, only three core or non-contract radios were apparently repaired from FY1992 through FY1994; therefore, we could not compare incurred costs for the contract and non-contract radios. We were subsequently advised by CECOM that hundreds of RT-524 radios were repaired at TOAD during FY1992 - FY1994 as a part of the VRC-46 configuration and the VRC-12 family. Even though the competitive price offered savings of between \$500-900/unit, neither TOAD nor CECOM tried to apply the processes or the prices proposed in the competition to non-competitive units. From the depot's point of view, the competition was a separate event from its assigned business with the embedded units differing from those subject to competition.

¹ The RT-524 proposal was submitted on July 22, 1991. At the time when the proposal for the RT-524 was submitted, the U.S. Army Depot Systems Command (DESCOM) and the Army Material Command (AMC) did not allocate cost applicable to their operation to TOAD. Since TOAD used its actual rate to project indirect costs, an amount for home office (DESCOM & AMC) was not reflected in the estimated indirect cost rates for the RT-524 cost proposal.

The net operating result (NOR), which represents the difference between revenues and costs, reported by TOAD for the RT-524 agreement averaged a plus five percent per year. However, we believe the depot's NOR is overstated based on the depot's recording of forward pricing rates in its accounts which were never adjusted for actual indirect costs incurred.

Material cost estimating for RT-524 repairs ultimately decided the winner. All material was to be contractor furnished (CFM); however, the costs for material designated as "mandatory replacement items" which exceeded the national stock number prices for the items used as the basis for the BAFO would be paid by the government. The impact of this reimbursable provision was significant. Material costs totaling \$1.8M were handled as reimbursables and added about \$520 to TOAD's average unit price of \$2208. Discussions with the CECOM contracting officer indicate that it was clearly the government's intention to provide this cost reimbursement feature; nevertheless, we believe the solicitation and discussions held during the competition were not clear that price increases for mandatory replacement items would be paid by the government. While we could not determine if other offerors interpreted material pricing requirements differently than TOAD, we did observe that the proposed material prices varied widely among the competitors. Material price estimates for the BAFO ranged from TOAD's \$7.0M to the second low offeror's estimate of \$8.4M to the high cost material proposal of \$15.1M. The government's material estimate was \$9.9M.

CECOM's election to waive cost comparability handbook provisions may have affected source selection given the closeness of the competition. Discussions with the contracting officer indicated the cost comparability handbook provisions were optional in FY1991. To the best of our knowledge, cost comparability adjustments could have been applied.

The timeliness and high quality of TOAD's performance of the RT-524 contract is impressive. The depot's management of material ordering, use and costs throughout the contract was excellent. TOAD's estimating procedures were thorough and were the best of the public depot's reviewed.

TOAD has the necessary systems in place to capture direct costs applicable to final cost objectives. TOAD has an indirect cost structure which identifies all indirect costs by element of cost. Indirect costs are segregated by expense pools and are allocated to final cost objectives based on direct labor hours.

Based on our observations, there is a need to place additional emphasis in the direct labor timekeeping system. We noted that the plating cost center is essentially recording direct labor hours based on the standard time established for the specific operation. While the calibration cost center claims to be on a real time basis where the employee (or supervisor) clocks on and off the job, it is apparent that the timekeeping system is driven by the amount of time shown in the standard. Accordingly, we believe TOAD needs to address internal control weaknesses in direct labor charging.

TOAD's application of forward pricing rates for both direct labor and indirect costs to record job order costs incurred on competitive awards restricts management's ability to properly

perform program analysis. It also results in misleading and inaccurate financial reporting. Utilizing forward pricing rates to record incurred costs on the RT-524 program resulted in an understatement of at least \$858,000 on this award. Consequently, other programs are absorbing these costs.

TOAD's use of predetermined labor and indirect cost rates, on non-competitive awards, constitutes a reasonable method of computing direct labor dollars and allocating indirect costs during the course of the fiscal year. However, these rates should be adjusted to actuals at the end of each fiscal year. TOAD's current practice of not adjusting to actuals at the job cost level can result in distorted financial data by job order. Also, the fact that actuals are never shown on the job cost ledger may result in a lack of an incentive to monitor and adjust predetermined rates during the course of the fiscal year.

We found the estimating practices to be based on current data at the time of submittal. Cost and pricing data were well documented. Estimated labor hours were supported by detail operations. We considered the estimating practices and techniques to compare favorably with private industry.

INTRODUCTION

Tobyhanna Army Depot (TOAD) participated in four public/private competitions from FY1991 to FY1993. The depot won two competitions, one for the overhaul of the RT-524/524A receiver-transmitter and one for the repair of 28 Signal Source items in FSC 6625 for the U.S. Air Force.² Post-award performance for the signal source competition could not be evaluated since TOAD had not proceeded beyond first article approval as of August 1994. The RT-524 program, in contrast, has produced 3,509 finished units and was the program evaluated.

RFP DAAB07-91-R-G514 was issued by the U.S. Army Communications-Electronics Command (CECOM) to approximately fifty firms and TOAD for the FY92-FY95 RT-524 overhaul program. The RFP was an indefinite delivery indefinite quantity requirement for 1,000 minimum units per year, a maximum of 1,700 units per year, and an annual submission of Integrated Logistics Support (ILS) documentation. Price was evaluated on the basis of overhauling the maximum quantity of radios and the ILS documentation each year for four years. Technical proposals were required covering Production Plans, Depot Supply Operations, Electronic Maintenance Background, Personnel Requirements, QA, Parts Control, Management/Project Structure and Key Personnel. Competitors had to be judged as technically acceptable in each factor to be qualified for award. Award would be made to the lowest priced, technically acceptable offeror adjusted for transportation cost differentials. The transportation evaluation factor was clearly addressed in Section M of the RFP, covering the cost of transporting 141 units per month from the supply point (TOAD) to the overhaul point. TOAD's adjustment would be zero.

The solicitation was issued on 20 June 1991 with an original closing date of 21 July 1991. Questions raised by potential competitors were answered by CECOM in writing on 15 July 1994. The closing date was extended to July 29th at which time four private companies and TOAD responded. TOAD was the second low offeror after initial offers.

The technical and price evaluations of the initial offers were conducted by separate teams and completed by 12 August 1991. Technical issues which required discussions were identified and all five offerors were declared as being susceptible to being made acceptable. At this point, however, two offerors were judged to be not technically acceptable without clarification of, and/or amendment to, some of their technical factors. Formal technical discussions commenced with the five offerors in writing on 15 August with responses due by 21 August 1991. Best and Final Offers (BAFOs) were not requested at this time. Revised price proposals were required if the offerors' technical revisions affected price. TOAD was still the second low offeror at this point in time; however, the margin had shrunk to \$9.5K. In addition, one company was removed from the competitive range.

² TOAD also participated in five public/public competitions for the workload being reassigned as a result of the announced closure of Sacramento Army Depot. TOAD won four of the five.

BAFO's were requested from the four remaining offerors on 26 August and received in September 1991. Only TOAD changed its price, reducing its final offer by some \$325,652 which TOAD said represented a 2% reduction in material costs. In this manner, TOAD's BAFO displaced the next low offeror. Ironically, the former low offeror said it believed that material costs were essentially fixed and chose not to revise its pricing offer in the BAFO. The award to TOAD was announced on 25 September 1991. Unsuccessful offerors were also notified by letter on the 25th.

The contract was successfully performed by TOAD for FY1992 and FY1993 at minimum quantities or higher. FY1994 quantities were reduced below the contract minimum in recognition of the Army's transition to a new radio, the Single Channel Ground and Airborne Radio System (SINCGARS). The FY1995 option was not to be exercised. In addition, no non-contract radios were produced in volume; therefore, we could not compare incurred costs for the contract radios against those being overhauled as core workload.

SCOPE

The purpose of our review was to determine if TOAD's estimating and cost accounting systems provided a level playing field for the RT-524 public/private competition and whether or not Cost Comparability Handbook adjustments were appropriately applied. We also reviewed the depot's compliance with Cost Accounting Standards and the accuracy of its system for allocating and recording costs to the RT-524 program.

The scope of our review included a tour of the facility and an on-site review of timekeeping practices in two cost centers. We reviewed the RT-524 solicitation and proposal files, the depot's price proposal file supporting the Standard Form 1411's, and its job cost accounting system. We also analyzed the depot's indirect costing rates used for forward pricing, the depot's predetermined indirect costing rates applicable to fiscal year 1993 and the actual costs incurred on the RT-524 award. In addition, we reviewed the methods used to price and track material for RT-524 repairs and the estimating process used by the depot.

CECOM's source selection files, including technical and cost proposals and evaluations were made available for our review to assist us in determining how material costs were handled by the competitors and to follow the give and take of the negotiation process in this very close competition. While at CECOM, discussions were also held regarding the apparent absence of core RT-524 workload after contract award.

JOB COST LEDGER

The job cost ledger shows total direct and indirect costs for each job number. For the most part, direct labor hours are based on the real time each employee charges to a specific job order number. To arrive at direct labor dollars, TOAD uses a predetermined average hourly labor rate for each cost center. This average rate is based on the weighted labor rates for each labor skill level within each cost center at the beginning of each year adjusted for anticipated wage increases. If the average cost center hourly labor rate gets out of kilter during the fiscal year, TOAD will adjust the rate. Assuming that the predetermined average hourly labor rate remains fairly close to the actual average hourly labor rate, no adjustments are made. Also, TOAD does not adjust to actuals at the end of the fiscal year. Accordingly, the amount shown as direct labor dollars on the job cost ledger is never the actual amount.

Indirect cost rates for each of the four indirect cost pools are also based on predetermined rates. Similarly, these rates will get adjusted if significant changes take place during the fiscal year. However, the final predetermined rate for the fiscal year is what finally gets applied. Accordingly, the final amounts shown for indirect costs on the job cost ledger do not reflect total actual expenses. However, if appropriate adjustments are made during the fiscal year, the final amounts should be close to actuals.

For competitive awards, TOAD records direct labor hours in the same manner as non-competitive work, but deviates from its normal cost accounting practices by applying forward pricing rates (direct labor and indirect costing rates used in the price proposal) to record costs incurred. The application of forward pricing rates in lieu of actual fiscal year rates, especially on procurements with options, can drastically understate or overstate actual costs. Consequently, TOAD management is not being properly advised as to profit or loss on specific job orders. For example, the RT-524 net operating results (NOR) shown in Figure 1 for FY1992 through FY1994 show an average "profit" of about five percent per year.

Figure 1

	FY1992	FY1993	FY1994	TOTALS
UNITS	1,000	1,700	809	3,509
REVENUE	\$2,175,350	\$3,750,982	\$1,823,356	\$7,749,688
COST	2,030,989	3,636,882	1,731,319	7,399,190
NOR \$	\$144,361	\$114,100	\$92,037	\$350,498
NOR %	7.1%	3.1%	5.3%	4.7%

Cost incurred for the three year program would have increased by approximately \$858,000 had the depot's normal process for developing and applying labor overhead and G&A

rates been used rather than forward pricing rates or had the forward pricing rates been adjusted annually by actuals.

LABOR HOUR TRACKING

Engineering standards are developed for the items repaired and production tasks performed by TOAD and were used to develop the RT-524 price proposal. Actuals recorded by the workforce adhere very closely to the hours established in the standards. In our visits to two cost centers, it appeared that set hours were being reported back to management rather than the actual hours incurred to complete the task. In one center, the supervisor entered the hours the artisan was to perform in accordance with the standard hours specified. In the second cost center, the supervisor assigned hours which, for all intents and purposes, were not deviated from by the artisans. In the face of these two observations, it appears that hours reported as incurred are not actuals.

COMPARISON OF COMPETITIVE VS. NON-COMPETITIVE RT-524 REPAIRS

The competition resulted in a reduction of approximately 27% in the repair costs for the RT-524 series primarily through a change in statement of work which reduced the time to repair by about 8 hours per unit. The contract price was roughly \$2175/unit in comparison to a non-competitive repair price which averaged \$3106/unit in the FY1992 time frame. Based on these reduced prices, we expected to see the application of the competitive process and prices to TOAD's core RT-524 workload. This was not the case and it became very clear that it was TOAD's stated intention to keep the competitive work separate from its normally assigned workload.³ TOAD also advised us that there was no RT-524 repair volume of any significance beyond that received under the contract. Only three RT-524 units were reportedly completed during the contract period at unit costs ranging from \$3200 to \$3600. (We were later advised by CECOM that TOAD routinely repaired between 400 and 600 RT-524's annually as part of the VRC-46 configuration (two RT-524's and an antenna) or as a part of the VRC-12 family.)

COST COMPARABILITY

CECOM waived the use of cost comparability factors for this solicitation, stating that there was not enough time to validate the factors and that the extent of competition would ensure

³ TOAD had set up a totally separate production line for the contract RT-524 radio repairs from its core work. This concept was abandoned after the first contract year.

the lowest cost was received. CECOM did sign a cost comparability certificate on 21 September 1991 stating that comparable estimates of all direct and indirect costs had been received and evaluated. We did not attempt to estimate what the adjustments would have been had cost comparability not been waived. We did note that when the RT-524 proposal was submitted, the U.S. Army Depot Systems Command (DESCOM) and the Army Material Command (AMC) did not allocate costs applicable to their operations to TOAD. Since TOAD used its actual rate to project indirect costs in the proposal, an amount for home office (DESCOM and AMC) was not reflected in the estimated indirect cost rates for the RT-524 proposal. We also noted that the price difference between TOAD and the next low offeror was less than two percent.

MATERIAL

Material cost estimating swung the competition in TOAD's favor. In fact, it is unusual that material costs, which represent about 47% of TOAD's contract repair price, would not be provided as government furnished to remove the risk associated with occurrence factors and price adjustments.

CECOM did, however, remove most of the out-year price adjustment risks by stipulating that costs incurred over and above the standard unit prices for material identified as "mandatory replacement items" in the solicitation would be reimbursed by the government. During our review, we did not realize this feature was in the RFP until we saw a modification to the agreement after award to provide TOAD with a mechanism to which to charge extra material costs. We could not determine if the competition interpreted the handling of price increases for mandatory replacement items in the same manner as TOAD and CECOM. Nevertheless, the material costs estimates differed widely by the competitors, ranging from \$7.0M for TOAD to \$8.4M for the next low offeror to \$15.1M for the highest material cost proposal, an amount almost the equal of TOAD's price for the entire RT-524 effort.

In execution, TOAD's control of material costs is impressive as shown in Figure 2. Extra costs for mandatory replacement items are contained in Figure 3.

Figure 2

CFM	FY1992	FY1993	FY1994	TOTALS
UNITS	1,000	1,700	809	3,509
MATL BID	\$1,026,810	\$1,745,577	\$830,689	3,603,076
ACTUALS	1,023,578	1,847,980	840,588	3,712,146
DIFFERENCE	(-\$3,232)	\$102,403	\$9,899	\$109,070
% OF BID	(0.3%)	5.9%	1.2%	3.0%

Figure 3

	FY1992	FY1993	FY1994	TOTALS
EXTRA MATL COSTS	\$549,628	\$899,965	\$384,932	\$1,834,525
UNITS WORKED	1,000	1,700	809	3,509
EXTRA/UNIT	\$550	\$529	\$476	\$523

We researched material records thoroughly to insure the material costs charged as extra only represented price increases for mandatory replacement items.

COST ACCOUNTING STANDARDS (CAS)

We briefly reviewed the CAS Board Disclosure Statement that was prepared by DESCOM. As might be expected, DESCOM did not have the same understanding of CAS that would be required of a private firm. With respect to the 19 Cost Accounting Standards, there are several potential non-compliance issues which we have listed in Appendix A.

CONCLUSIONS

The RT-524 Radio Repair Competition was indeed competitive. In this competition, TOAD may have been provided competitive advantage by material pricing provisions of the solicitation and the decision to not apply cost comparability factors to the TOAD offer.

TOAD's approach to the competition was thorough, professional and well documented. Its estimating practices compare favorably with private industry. In performance, TOAD personnel demonstrated an excellent understanding of cost accounting. The depot's accounting system was generally responsive to management needs.

To the extent that pre-determined rates or cost estimates are recorded, without being updated based on actuals, recorded and reported costs were misleading on the RT-524 program, with cost of performance understated by at least \$858,000.

A weakness also exists where employees are recording standards vice actual hours on timesheets. Emphasis should be placed on this observation since most standards are based on professional estimates not engineering studies, thus potentially subject to error.

COST ACCOUNTING STANDARDS (CAS) ISSUES

Potential CAS non-compliance issues at Tobyhanna Army Depot (TOAD) are identified as follows:

<u>CAS STANDARD</u>	<u>ISSUE</u>
401 -Consistency in estimating accumulating and reporting costs.	TOAD accumulates costs on competitive awards based on proposed rates.
403 -- Allocation of home office expenses to segments.	Currently, the home office allocation is based on an overall allocation. CAS 403 requires the identification of expenses for direct allocation to the maximum extent possible.
407 - Use of standard costs for direct material and labor.	TOAD's use of a predetermined average hourly labor rate for each cost center is a form of standard costing. TOAD does not account for related variances at the level of production unit.
410 - Allocation of business unit general and administrative expenses to final cost objectives.	Under this standard, cost input is the preferred allocation base. Currently, TOAD uses direct labor hours as an allocation base. A private firm would be required to demonstrate and support use of a single element base.
420 - Accounting for independent research and development (IR&D) costs and bid and proposal costs.	Currently the TOAD accounts for bid and proposal costs by separate job numbers. Presumably, no IR&D costs are incurred. TOAD does not allocate indirect costs to bid and proposal labor as required by this standard.

M88 Tank Retriever Transmission and Final Drives Case Study

Anniston Army Depot

**Coopers
& Lybrand**

Coopers & Lybrand L.L.P.

a professional services firm

EXECUTIVE SUMMARY

M88 TANK RETRIEVER TRANSMISSION AND FINAL DRIVES CASE STUDY

Coopers & Lybrand reviewed the Anniston Army Depot's participation in the public versus private competition program. The Depot was selected by the Department of the Army to compete on two maintenance contracts, the M88 Tank Retriever transmission and final drives, and was the successful offeror on both.

The objective of our study was to evaluate the depot's estimating process, the integrity of its accounting system and related internal controls. A corollary objective was to compare their estimating and accounting practices with those in industry, noting regulatory and other differences that might impact the competition program. In addition, we were asked to provide observations regarding the source selection process.

The depot was inadvertently provided certain unfair advantages at the very start of the source selection process. These advantages had the potential to seriously compromise the competition and undermine its fairness in the eyes of observers. We do not believe, however, that they impacted the integrity of the source selection. The Depot inappropriately received advance notification of the programs to be competed thus permitting it more time over its competitors to plan its strategy and prepare its proposal estimates. In addition, the Request For Quotations (RFQ) statement of work for the transmission contained ambiguities that resulted in significant disparities between the depot and its private competitor in the estimated costs for material. The ambiguity dealt with whether certain transmission parts should be replaced with new or refurbished materials. The depot offered refurbished parts; the private competitor, whose material estimate was seven times larger, offered new parts. This issue was not clarified during negotiations. In this case we do not believe these issues had a material impact on the source selection. However, they have the potential of directly impacting the real and perceived fairness of the competition. They also could invite protests, which would delay performance and increase costs.

The realization that costs will be absorbed by other programs, coupled with the desire to keep work in house, provide Anniston with incentives to understate proposal estimates. The Defense Contract Audit Agency (DCAA) reviews of the initial proposal submissions disclosed significant understated costs. DCAA recommended and Anniston concurred in adjustments which resulted in increases to proposal estimates. The increases nearly doubled the initially proposed overhead. DCAA did not comment on labor hours, since this was not in their area of expertise, but our study disclosed that proposed hours were more than 50 percent lower than prior history on identical or similar maintenance projects. The magnitude of such productivity gains are generally unheard of within private industry. If accurately recorded, actual hours on the transmission and final drive would substantially exceed proposed hours.

The skill and experience of depot personnel preparing the cost estimates were considerably below that of their private industry counterparts. Their knowledge of FAR, CAS and proposal preparation techniques was deficient. As a consequence, substantive errors and significant CAS noncompliances were detected and reported by DCAA.

The depot's timekeeping and labor charging systems are unreliable. Employees do not validate their time charges. Supervisors, who enter time charges for employees, are subjected to performance appraisals related to work efficiency or achieving standards. Based on our observations, it appears that meeting standards take precedence over charging accuracy. The mischarging on the programs reviewed was widespread. As a minimum, new internal controls need to be established over timekeeping, supervisors have to be trained on proper timekeeping practices, and comprehensive floor check audits need to be instituted to detect and report mischarging.

The depot's overhead structure is sound. With the exception of building depreciation, we found no substantial costs missing from overhead pools, and we believe the basis for charging costs to specific pools was reasonable. However, the practice of allocating all indirect costs to projects on a direct labor hour base significantly distorts costs. This occurs because of the substantial material content of depot maintenance workload. The exclusion of such costs from overhead distribution bases leaves little assurance that accurate job costing is being accomplished.

Depots are subject to the CAS standards contained in DoD 7220.9M, the DoD accounting manual. These standards are less stringent than those imposed on industry. For example, CAS 404 and 409, dealing with depreciation, and promulgated by the Cost Accounting Standards Board, are treated differently in DoD 7220.9M. This permits depots greater latitude in determining the capitalized value of assets, useful lives and residual values.

Depots are not required to submit disclosure statements which allows them to effect accounting changes during contract performance. This can mask contract overruns. Industry competitors are prevented from making such changes without submitting cost impact studies and effecting appropriate contract adjustments.

DCAA audit reviews and our study noted numerous CAS noncompliances. The noncompliances with CAS 401, 410 and 418, all of which are part of DoD 7220.9M, dealt with how the depot estimated and accumulated costs. These violations occur because the depot does not appear to have personnel knowledgeable with CAS, which in turn is not an integral part of the Depot's accounting regimen. Army Regulation 37, the Depot's accounting "guidebook", does not delineate the standards as does the FAR or DoD 7220.9M.

INTRODUCTION

The Anniston Army Depot dates back to 1942 when it first operated as an ordnance depot. In 1952 it was selected to perform a maintenance mission and eventually evolved to the U.S. Army's major facility for the maintenance and rebuild of tanks and other heavy armored vehicles.

In 1992 the Depot became a major participant in public versus private competition and was successful in winning competitions on two programs previously performed at the depot as part of its normal "core" maintenance mission. The two successful competitions were the M-88 Transmissions and Final Drives. The total value of the Firm Fixed Price portions of the awards amounted to approximately \$1.4 million. Related cost reimbursable work for "over and above" effort totaled approximately \$442 thousand.

The M-88 transmission work is complete while the final drive is nearly complete. Of the 172 final drives under the contract, 132 are finished while an additional 28 are in process as of August 1, 1994. The proposed versus the recorded incurred costs for the fixed price portion of the transmission are:

	<u>Proposed</u>	<u>Incurred</u>
Direct Labor	\$ 288,107	\$ 298,217
Material	355,767	369,962
Indirect Costs	<u>412,656</u>	<u>429,361</u>
Total Cost	<u>\$1,056,530</u>	<u>\$1,097,540</u>

For the fixed portion of the final drive proposed versus recorded incurred costs through August 1, 1994 are:

	<u>Proposed</u>	<u>Incurred</u>
Direct Labor	\$ 83,857	\$ 99,045
Material	114,148	57,804
Indirect	<u>127,529</u>	<u>139,564</u>
Total Cost	<u>\$325,534</u>	<u>\$296,413</u>

While this data would indicate reasonable performance, because of cost mischarging it is misrepresentative of actual performance.

The depot also participated in a public vs. public competition after the Base Realignment and Closure Commission directed the closure of the Sacramento Army Depot. It was decided that the Sacramento Army Depot workload would be distributed based on competitions between the Air Force's Sacramento Air Logistics Center and five Army depots. The Anniston Army Depot was the unsuccessful bidder on the Electro Optics Night Vision portion of the maintenance work previously conducted at the Sacramento Army Depot.

The objective of our case study was to evaluate the depot in the following areas:

1. Proposal cost realism and how effectively the depot implemented the Cost Comparability Handbook (CCH).
2. Integrity of its accounting system and adequacy of its related internal controls.

A corollary objective was to observe and contrast the depot's estimating and accounting practices with those in operation within industry, noting regulatory or other differences that might impact the objectivity of public versus private competitions. Finally, we were asked to comment on our observations on the source selection process.

SOURCE SELECTION

If the concept of "fairness" on public versus private competitions is to be achieved, it is imperative that care be exercised to ensure that public and private competitors are treated equally in the source selection process. Although we do not believe that the integrity of the selection process was compromised, we noted that the Anniston Army Depot was provided an unfair advantage by receiving advance notification of the programs to be competed. We also noted that certain ambiguities in the RFQ work statement had the potential of placing the depot at an advantage over its private competitor on the transmission program.

Discussions with depot representatives disclosed that the depot was given advance notification of the items to be competed thus possibly giving them an unfair advantage over their industry competitor by allowing them more time to prepare for and then draft their proposal estimates. The depot, therefore, not only had the legitimate advantage of prior work experience on both the programs but had the added advantage of more time to develop a strategy and prepare its proposals.

The depot was notified of the items to be competed by Department of the Army memorandum, subject: FY 1992 Depot Maintenance Competition, dated December 16, 1991, which was about four to five months prior to their proposal submission dates of May 4, and June 8, 1992. Industry competitors were not notified of the opportunities until they were published in the Commerce Business Daily on March 6 and April 8 of 1992.

These were relatively small procurements thus time limitations were not as critical as they might have been if the proposal requirement was more complex. Nonetheless, if the concept of a "level playing field" is to be approached, it is imperative that all potential offerors be accorded equal treatment and be given the same amount of time to study the RFQ, develop strategy, and prepare estimates. Great care is normally taken in ensuring that private firms are not provided advantages over others by publicly announcing requirements with information available simultaneously to all interested offerors.

Our study disclosed ambiguities in the RFQ statement of work for the transmission that resulted in a significant disparity in offers between the depot and its private competitor. Although the ambiguity did not directly impact the selection process in that Anniston's offer would remain the lowest after adjusting for the ambiguity, it does impact the "fairness" issue of public versus private competitions.

The RFQ statement of work specified that certain parts were to be replaced 100 percent on all transmissions and transmission containers received by the contractor. The depot's BAFO proposed that most of these mandatory replacement parts would be refurbished, cleaned and reused rather than replaced. The depot in its BAFO asserted that it had been repairing these transmissions for several years and had the facilities and equipment to do the necessary welding, machining, and metal finishing to recondition the parts. A reading of the work statement can lead one to conclude that mandatory replacement meant purchasing new parts not refurbishing existing parts.

We contacted the responsible acquisition office to obtain more information as to how the private competitor proposed these material parts. We were informed that the private competitor proposed all new parts and that its material cost element was seven times higher than the comparable depot material offer. The acquisition office representative also advised that the RFQ work statement does not specifically state that new parts be used to replace the mandatory replacement items. The representative also stated that the depot's offer was so low that any adjustment for material would not change the depot's status as low offeror. Further, even though the private competitor offered new parts on all mandatory items, it did not, according to the procurement representative, have the equipment necessary to refurbish parts. It should be noted, however, that many of the parts did not require special equipment to be refurbished. Some parts, according to our discussions with depot personnel, merely had to be tested and if satisfactory, cleaned and reused. This issue should have been addressed in discussions.

PROPOSAL COST REALISM

Study of the two M-88 proposals and related DCAA reports disclosed that the reliability of the depot cost estimates was far below those submitted by most private firms. The cost realism of the proposal estimates, its compliance with applicable regulatory requirements, and the quality of its supporting documentation were seriously flawed. This was evident from DCAA's reviews of both the M-88 Transmission and Final Drive proposals. The Agency concluded that the proposals were, "... not in compliance with the Cost Comparability Handbook, with the applicable Cost Accounting Standards, and appropriate provisions of FAR". Furthermore, DCAA stated that the depot's supporting cost and pricing data were not adequate. The DCAA recommended and concurred in adjustments which resulted in increases to the depot proposals, indicating that the depot had significantly underestimated costs.

The DCAA similarly concluded that the depot submitted inadequate cost and pricing data on the unsuccessful public versus public competition for the Sacramento Army Depot's Electro Optics Night Vision maintenance work. DCAA stated, however, that the proposal, as revised, was acceptable for evaluation by the Source Selection Evaluation Board. Equivalent DCAA audit opinions on a private competitor's proposal would, if the contracting officer so elected, be grounds for a resubmittal or disqualification for consideration for contract award. DCAA audit findings as well as our own observations led us to conclude that the depot's cost estimates were significantly understated.

DCAA did not take exception to proposed labor hours. The depot supposedly used Total Quality Management (TQM) and newly developed engineering standards to develop their labor hour estimates. Estimates, which as indicated below, represented substantive reductions from prior history on identical or similar-to maintenance work:

	<u>Actual Labor Hours</u>		<u>BAFO Proposed</u>	<u>Percentage of</u>
	<u>Per Unit</u>			
	<u>1990</u>	<u>1991</u>	<u>Unit Hours</u>	<u>1991 Actuals</u>
Transmission	203.8	187.5	74.4	40%
Final Drive				
Left	*	73.7		
Right	78.1	69.8	28.6**	20%

* No experience

** Left and Right combined

A technical evaluation of the hours was supposedly performed by the acquisition activity; however, the results were not provided to DCAA or to the depot. DCAA qualified its report to the extent that additional recommended cost adjustments may result from the technical evaluation, which they never received.

We attempted to review the TQM report on the final drive proposal but were informed that no report existed. The only documentation available was a few scattered notes and papers maintained by one of the employees who participated in the study. Therefore, the depot's estimating rationale was not properly documented to support the significant reduction in estimated hours. We obtained the current engineering standards for the final drive and compared the standards with hours proposed. We found that the current standards were 5 hours per unit higher than that proposed in the depot's BAFO. Depot personnel advised us the standards were developed subsequent to preparation of the proposals. If the new standards are indicative of eventual incurred hours, proposed hours will be overrun by 17 percent.

We compared proposed hours with those incurred to date, but, as subsequently discussed, the reliability of the depot's accounting system to accurately collect and record costs is highly suspect and render such comparisons practically meaningless. Although we cannot definitively determine the amount of hours that should have been proposed, we suspect that the depot's estimated hours were significantly understated. The magnitude of the productivity

improvements ... in excess of 50 percent... are generally unheard of within private industry unless attributable to state-of-the-art technology breakthroughs. Since no such documented occurrences took place at Anniston, questions arise as to the credibility of the depot estimates.

The depot used a hypothetical mid step of the applicable government wage grade scale or general scale to estimate labor dollars. DCAA took exception to the proposed labor rates and recommended a current actual labor rate per labor category by work center. This resulted in a 5 percent increase to the depot's proposed labor costs. We believe DCAA's recommended increase was valid and appropriate. In private industry, when bidding follow-on work, actual labor averages are used since they are the best indication of what labor categories and skill levels will be used on the proposed work.

DCAA found the depot's overhead to be significantly understated and recommended substantive increases in the depot's projected indirect expenses. The DCAA recommended increases nearly double the depot's proposed expenses. The following comparison depicts proposed and DCAA recommended rates.

	<u>Rates Per Direct Labor Hour</u>			
	<u>Transmission</u>		<u>Final Drive</u>	
	<u>Depot</u>	<u>DCAA</u>	<u>Depot</u>	<u>DCAA</u>
Within Shop	\$.54	\$ 4.08	\$1.38	\$ 4.08
Above Shop	5.01	10.90	Left 5.86	10.80
Above Shop			Right 4.85	10.80
Base Operating Expenses	6.11	8.06	6.11	8.06
General & Administrative	.98	.98	.98	.98

The differences were the result of the depot believing the CCH allowed them to eliminate indirect expenses and departments which they felt did not directly benefit the proposed work. DCAA correctly noted that the proposal effort was not significantly different than work already being carried out as part of its "core" maintenance work. Such work historically has been burdened with full overhead.

DCAA also cited the depot for being in non-compliance with CAS 401 and CAS 418. The CAS 401 violation resulted because the depot estimated proposed overhead differently from the methods used to accumulate and report costs under the proposed contracts. The CAS 418 violation resulted because the depot did not include all indirect production expenses within its proposed overhead rates. We believe, aside from the obvious intent to reduce its prices, this understatement resulted partly because of the depot staff's unfamiliarity with CAS and overhead proposal computations.

Our review of the DCAA audit report on the public versus public competition for the Electro Optical Night Vision work disclosed a \$15 Million error, wherein the depot inadvertently used an incorrect inflation factor in computing comparability adjustments that resulted in a 30 percent overstatement of proposed costs. This is mentioned since it confirms our observation

that the depot staff was inexperienced in proposal preparation. An error of this magnitude should have been detected during final review or through a parameter check of proposal reasonableness.

ACCOUNTING SYSTEM

The depot's timekeeping and labor charging system are not reliable. Employees do not validate how their time is charged, which is a serious internal control deficiency. Supervisors, who enter the time charges for employees, are subjected to certain performance appraisal standards and based on our observations, it appears that these standards take precedence over time charging accuracy. In other words, supervisors are motivated to charge employee time based on established standards rather than actual time worked. The motivation to do this is a desire to comply with performance appraisal standards which encourage work accomplishment at budgeted levels. The depot is aware of the time charging inaccuracies but had not yet been successful in making improvements that eliminate or lessen the mischarging. The DCAA, as part of its accounting system review, concluded that the depot's accounting system is inadequate primarily because of the poor internal controls over timekeeping and labor charging.

Our conclusions are based on review of the depot's timekeeping and labor cost recording practices. We focused on the competitively awarded final drive contract since work is still in process on this program. Discussions were conducted with supervisors and leadmen to determine (i) how competitive program parts are identified and kept separate from other work, (ii) how employee time is charged, and (iii) what limits, if any, are placed on labor charges to any given program. We also examined in detail one part, a component on the final drive program, to review accountability of parts after disassembly through the depot to re-assembly. The part selected was a baffle, NSN #2530-01-066-1788, which is machined identically (100 percent Depot Overhaul Factor) on each final drive. Each final drive requires one of these parts and all must be replaced. These inquiries and reviews disclosed numerous cost recording and internal control deficiencies summarized as follows:

- Employees are uninvolved in attesting to the validity of where their time is charged. This is itself a serious internal control deficiency that permits supervisory manipulation of time charging.
- Supervisors and leadmen in the shops are controlling labor charges to the program to meet standards. Once the total for standards is reached for parts in the shops, labor hours are mischarged to other work in the shops to avoid overrunning the standards. Specific examples of this were noted in four of the six work centers visited. For example, daily production records in work center SELOO showed that on June 21, 1994, thirty baffles were worked for the final drive competitive program. However, no labor hours were charged to the competitive program for this work "because standard hours had been exceeded and no more hours were available on the competitive program". We were informed that if supervisors

overrun standards by more than 5 percent, they are required to submit written justification. We were also informed that there is a critical element in each supervisor's annual performance appraisals regarding accomplishment of production at (or near) standard.

- In one work center visited, two employees were observed disassembling a final drive (serial #2486) for the competitive program. One of the employees' time was appropriately charged to the program. The other employee's time was mischarged to depot organic work.
- Labor costs were transferred by leadmen or supervisors up to four weeks after original entry simply by keyboard entry to the Automated Time and Attendance Production System (ATAAPS). These transfers can and are made with no written documentation or rationale on record to support the entry. One of these transfers for 117 hours removed labor cost from the competitive final drive program. This transfer was made 3 weeks after the original labor entry. No written procedures exist for this practice. No criteria as to when such transfers should be accomplished were available.
- There is evidence of confusion at the depot as to when to charge the cost reimbursement portion of the competitive final drive program versus the fixed price portion. Work center SEE00, Metalizing and Machining Branch, for example, refurbishes the baffle. Since the work on each baffle is the same and all must be reworked and replaced, the labor hours are appropriately charged to the fixed price portion of the contract. The contract requires 172 of the baffles. Through June 10, 1994, 171 were completed (production count taken). However, the labor hours for 69 of these baffles were mischarged to the cost type part of the contract. Labor for the other 102 baffles was appropriately charged to the fixed price part of the contract.
- A mischarging of material costs on this same baffle also took place. Twenty baffles were purchased and mischarged to the cost type portion of the contract. Time did not permit a more comprehensive review of the depot's material accounting practices. This one indication, however, may be representative of other material cost mischarging.
- Two organizations at the depot, the Internal Review and Audit Compliance Office and the Program Budget Branch, conduct floorchecks at the depot. These floorchecks have been largely ineffective. Over three hundred employees at the depot were floorchecked in the third quarter of FY 1994. Only four mischarges were noted. We attribute the misleading results of these floorchecks to the use of less than comprehensive audit techniques.

OVERHEAD COSTING AND RELATED INTERNAL CONTROLS

Our study concluded that the depot's overhead structure is sound, all costs are assigned to appropriate pools and the indirect rates are properly updated. However, we do not believe that direct labor hours are an appropriate base to allocate material costs. Similarly, the use of a labor hour base to allocate all indirect costs would not be allowed in private industry and would constitute a violation of CAS 410 and CAS 418.

The depot's overhead structure follows the guidelines prescribed in Army Regulation 37-1. We examined, in detail, how costs flow from work centers to specific pools of cost associated with depot maintenance and ammunition activities and result in four rates applied to specific programs. We believe the design of the overhead rate structure is appropriate and the flow of costs to overhead pools is well executed.

We reviewed several overhead pools and work centers to determine if all costs are included. We also examined charges received from outside the depot operations (i.e., Headquarters Depot System Command (DESCOM), Army Material Command (AMC), and tenants) and charges the depot allocates to its tenants. With the exception of building depreciation and problems associated with depreciation calculations, as subsequently discussed, all indirect cost elements appear to be included in the relevant pools and when charged to a tenant, costs are properly excluded from the pools. We were not able to learn from depot representatives the basis for DESCOM and AMC allocations nor tenant charges to the depot such as those from the Defense Logistics Agency.

The depot allocates four within-shop overhead rates and three other indirect rates on a labor hour base. We do not believe this is an appropriate base to allocate all indirect costs. Material costs, for example, represent a significant portion of direct depot costs (46% and 47% of the proposed transmission and final drive bids respectively). Allocation of material-driven costs on a direct labor hour base offers the opportunity for significant cost distortion. Programs with high material and relatively low labor hours and labor costs would tend to be undercharged while projects with low material and high labor cost would be overcharged.

Similarly, allocation of costs generated as a result of operating the depot as a whole, such as G&A and certain base operating costs, require an allocation base representing the total depot activity. The use of a direct labor hour base to allocate all indirect costs would not be allowed in private industry and such practices would constitute a violation of CAS 410 and CAS 418.

Based upon our interviews and observations, the budget office develops sufficient data to monitor overhead cost on a monthly basis. Every six months, the budget office reevaluates their annual overhead rates by incorporating updated actual results, variance from prior projections and more recent forecasts for the rest of the year. These revised rates are substituted for the initial rates and job costs reflect the new rates. We believe the depot's current method of

updating their overhead rates is comparable to good private industry practice and provides the opportunity to closely monitor program costs.

The depot intends to charge indirect costs at bid rates to not only the transmission and final drive programs but to all competitively awarded contracts. The cost records we examined used actual rates but depot representatives said this was a mistake and the cost records would be adjusted to reflect bid rates. The reason for this practice, the depot representatives contend, is that DESCOM requires it and that the Cost Comparability Handbook requirements prescribes actual cost charging at bid rates. We examined both assertions and found that DESCOM guidance is not clear while the depot's interpretation of CCH guidance is incorrect. The CCH's assertion that "rates and prices will be 'locked in'" refers to billing not costing practices. The use of bid rates for costing purposes represents a misinterpretation of the "consistency" prescription of CAS. This practice would be unacceptable in private industry, constitutes non-compliance with CAS 401, and for the reimbursable programs, a violation of FAR for inaccurate costing of cost-type contracts. The depot's current practice of charging actual costs is correct; the proposed change would not be correct.

DEPRECIATION

Depreciation practices while consistent with prescribed DoD and Army Accounting manuals and regulations are, in some case, at variance with depreciation practices within industry. The depot includes equipment depreciation in its various pools and the assignment to pools is reasonable. However, we noted that the depot does not include building depreciation costs or equivalent rental factors in its overhead pools or charges to its tenants. This is inconsistent with industry which records such costs to contracts and must include such expenses in billings to tenant organizations.

We have found numerous examples of depreciation practices that are inconsistent with private industry. These include:

- In accordance with DoD guidelines, the depot capitalizes only those assets valued over \$25,000 in acquisition costs while it expenses all purchased assets under \$25,000. This contrasts with the \$1,500 threshold that private industry must follow to be consistent with CAS 404. Based on interviews, we noted instances of computer system components being expensed because they were, individually, below the \$25 thousand threshold but should have been capitalized since they were parts of a system exceeding \$25 thousand. The depot does not currently have the ability to track this type of occurrence.
- Also consistent with DoD policy, the depot, in FY 1991, reduced all asset useful lives to three categories of 20, 10, and 5 years. Previous useful life guidelines varied by federal asset code and ranged from a low of 4 years to a high of 30

years. Pre-FY 1991 assets are still being depreciated based on their former useful lives. The new DoD policy prescribes utilization of a 10 year useful life for all equipment. This policy is inconsistent with private industry practice. Private industry must follow CAS 409, which calls for asset lives to approximate actual periods of usefulness and as a result depreciation ranges vary significantly from a mandatory 10 year life.

- The Depot currently uses a zero residual value for all computer and equipment purchases. Depot representatives say they do not use a residual value because they have not received any guidance. Private industry, to comply with CAS 409, must determine residual values for each asset and such costs must be deducted from the capitalized value.

In addition, the Army Audit Agency, in their financial audits of Anniston Army Depot financial statements, has consistently criticized the depot's methods and internal controls over depreciation calculations.

Since depreciation charges represent substantial costs within all overhead rates, particularly the within-shop overhead rates, the absence of building depreciation, questionable depreciation practices and the inconsistent treatment of depreciation compared to industry makes their overhead rates questionable.

COST TRANSFERS

GAO and Army Audit Agency reviews in early 1994 disclosed that actual maintenance costs on programs at the depot could not be determined due to unsupported cost transfers. To correct this condition, the Commander issued a June 23, 1994 memorandum to the Director of Maintenance requiring documented rationale and support for all cost transfers and review and approval by the Internal Review and Audit Compliance Office prior to entry of the cost transfer in the accounting records.

Our own review confirmed that prior to June 1994 costs were transferred at the depot with little or no documentation. Material costs, for example, were transferred without identification of the parts that were being transferred. Our specific reviews of cost transfers affecting the competitive M-88 Transmission and final drive programs disclosed no discernible patterns or trends to indicate that cost transfers were used as a vehicle to control cost charging on the programs. Consistent with the Commander's June 1994 memorandum, we noted a distinct improvement in rationale and data supporting cost transfers after the memorandum was issued.

CONCLUSIONS

Based on our study, we concluded that certain source selections practices had the potential for impacting the fairness and equity of the competitive programs. We also concluded that estimated and recorded costs on the programs were not reliable. In addition, we noted that different cost standards are applied to depots, and the depot's implementation of the CAS Standards contained in DoD 7220.9M was in need of significant improvement. The major problems associated with the public versus private competition are summarized as follows:

- The depot was inadvertently provided advance notification of the programs to be competed.
- Ambiguities in the RFQ work statement resulted in disparities between the material estimates submitted by the depot and those by its industry competitor. While this ambiguity did not compromise the competition, it certainly had the potential to impact the fairness of the source selection.
- The absence of economic risks plus incentives to maintain workload and preserve jobs combined to provide sufficient impetus to significantly understate proposal estimates. A documented estimating process should be established, followed and tested periodically.
- Depot personnel do not possess the skills and experience levels on FAR principles and proposal preparation techniques comparable to its industry counterparts.
- Both proposal estimates and incurred costs are not prepared and/ or recorded in accordance with the CAS standards contained in DoD 7220.9M.
- Depot internal controls are not effective. Labor charging and the allocation of costs must be improved and disciplined.
- The depot does not include building depreciation costs or equivalent rental factors in its overhead pools or charges to its tenant. In industry such expenses would be recorded to contracts and billed to tenants.
- The depot allocates overhead based on a direct labor hour. This may not be the most appropriate and accurate method for assigning costs to contracts and programs.
- The depot accounting system is adequate to permit the proper accounting for costs by program or project. The problems observed relate to procedures, practices and the absence of effective internal controls.

J-52 Engine Case Study

NADEP Jacksonville

**Coopers
& Lybrand**

Coopers & Lybrand L.L.P.

a professional services firm

EXECUTIVE SUMMARY

J-52 ENGINE COMPETITION CASE STUDY

In May 1992, a portion of the J-52 depot level maintenance work normally performed by Naval Aviation Depot (NADEP) Jacksonville was opened to public and private sector competition. NADEP Jacksonville, Oklahoma City Air Logistics Center, and three private companies participated. The contracting office, Naval Air Systems Command (NAVAIR), selected a best value approach to source selection in which each of the three evaluation factors, Technical, Management and Cost/Price, were given equal weight. A firm fixed price, indefinite delivery indefinite quantity contract was to be awarded for a base year and four option years.

In developing the J-52 solicitation, NAVAIR took steps to level the playing field by providing government furnished material. NAVAIR also attempted to eliminate much of the guess work on what to repair and how often to repair the engine and its systems and components.¹ NAVAIR also required a public sector winner to operate under the same conditions as the private sector for such processes as material ordering and contract administration.

NAVAIR awarded contract N00019-93-D-0188 in August 1993 to NADEP Jacksonville after an extensive negotiation and evaluation period with three of the five offerors. Discussions with the NAVAIR procuring contracting officer and the cost/price proposal team leader indicated that significant efforts were expended to insure the NADEP price proposal was realistic, including a DCAA audit designed to assist the contracting officer in determining the realism of the depot's offer.

For the competition and subsequent contract, NADEP Jacksonville proposed to improve its operating efficiency from 75%-85% of its J-52 engine engineering standards to 95% and to reduce costs from about \$61/hour when the engines were repaired in the Engine Branch cost center to about \$50/hour. (Production overhead costs would have to be reduced from about \$29/hour to \$14/hour to achieve the \$50/hour rate which formed the basis for the contract prices.) We reviewed the estimating techniques used to develop each of these positions as well as the depot's ability to capture program costs and to perform within its contract prices.

NADEP Jacksonville established a separate J-52 cost center for the competition. The establishment of the J-52 cost center (Code 990) was an estimating technique to reduce the amount of total estimated production overhead on the contract. This was accomplished by maximizing the number of direct labor hours assigned to the center to spread overhead costs, reduce hourly rates and significantly reduce the expenses allocated to the J-52 cost center itself. For example, the J-52 engine program averaged about 155,250 direct labor hours per year in FY1992 and FY1993; however, we noted that the depot proposed a base of 340,700 hours to allocate production

¹ The competitors were to propose firm fixed prices to provide basic services for each engine such as open, inspect and report, reassembly and final testing. Basic services represented about 25% of the total repair effort. The bulk of the repair requirements were contained in a line item entitled "Fixed Price Over and Above," which required individual firm fixed prices for some 330 different repair actions. Items outside the scope of basic services and fixed priced over and above were proposed at a fixed hourly rate.

overhead costs in the base year of the contract. (The depot combined its J-52 component repair workload managed by the Navy's Aviation Supply Office with the J-52 engine program to achieve this broad direct labor hour base.) In addition, we found that the production overhead costs assigned to the J-52 cost center were 50% less than those assigned to its former organization, the Engine Branch, even though hours incurred in the Engine Branch were less than the J-52 program.

Our review indicates the significant cost savings offered under the contract were not being achieved during contract performance in FY1994. We sampled six of the 34 engines shipped in FY1994 and found costs for basic services (CLIN's 0001-0004) to be over 50% higher than contract prices. Labor hours incurred in excess of those estimated accounted for over 70% of the sample's overrun, partly because of production delays caused by the ordering system the depot was required to use for government furnished material (GFM). In addition, the quantities under the contract were dramatically reduced with A-6 aircraft requirements declining. Increases in the G&A rate of about \$5/hour accounted for almost all of the remaining extra costs apparently because the direct labor hours to be assigned by NAVAIR in FY1994, the basis for the depot's J-52 G&A rate, did not materialize. Lastly, we noted the depot was not accurately recording costs for fixed price over and above work, the largest portion of the contract, due to programming problems.²

In contrast, the overhead rate observed from the engine sample did not differ substantially from the proposed rate of \$14.12/hour. In addition, the command was pursuing an aggressive program to reduce overhead costs the last four years. During this period, NADEP Jacksonville has reduced its command-wide production overhead rate from \$27.90/hour in FY1991 to a reported \$17.23/hour in FY1994.

It is interesting to note that NADEP Jacksonville did not submit a claim or request a price adjustment for schedule delays and quantity changes. Presuming that government delays and quantity changes were significant causes of cost increases, this is not the course of action we would expect from a private company. The fact is that the depot did not need to submit a claim since all of its J-52 costs were being covered from one funding source or another.

² If, for example, a job bid as a part of CLIN 00 11 required a new set of 66 blades to be installed at a fixed price of \$1000 per set, the program devised to assign these costs to a job order charged a fixed price of \$1000 to each of the 66 blades being changed.

INTRODUCTION

We reviewed the estimating procedures and accounting practices used by the Naval Aviation Depot Jacksonville (NADEP JAX) in conjunction with the public and private competition for J-52 engine depot level maintenance.

NADEP JAX has over twenty-five years of experience in repairing the J-52 engine used on the Navy's A-6 and EA6B aircraft and was selected as the Navy's single site for J-52 depot repairs in 1991. In 1992, Naval Air Systems Command (NAVAIR) opened a portion of NADEP JAX's J-52 work to public and private sector competition. NAVAIR selected a best value approach to source selection in which each of the three evaluation factors, Technical, Management and Cost/Price, were given equal weight. A firm fixed price, indefinite delivery indefinite quantity contract was to be awarded for a base year and four option years. NADEP JAX, Oklahoma City Air Logistics Center (OC-ALC), and three private companies competed.

In discussions with the NAVAIR procuring contracting officer and the cost/price evaluation team leader, we were advised that three of the five original competitors made it into the competitive range and submitted best and final offers (BAFOs) in July 1993. NADEP JAX won the competition and was awarded Contract N0019-93-D-0188 on 24 August 1993. The total evaluated contract price based on estimated and expected quantities plus over-and-above items is in excess of \$27 million for the base year and four option years. From NAVAIR's viewpoint, the award was made to the high technical, low price offeror. As an interesting aside, NADEP's technical proposal was not incorporated into the contract. In this manner, NAVAIR retained the RFP's statement of work at the prices proposed by NADEP JAX in its BAFO. In addition, the award was not converted into a defense interservice maintenance agreement, but instead retained its FAR language and content.

Shortly after award, the core engines retained by NADEP JAX which were not included in the competition were added to the contract so that customers could benefit from the cost savings offered by the contract and the depot would not have to manage the same product differently. This modification was propitious since the A-6 aircraft requirements were subsequently reduced, causing a reduction in maintenance requirements for the J-52 engine. Had the core J-52 workload not been moved under the contract, it is questionable whether or not contract minimums could have been met.

The contract requirement to use the Contractor Aviation Material Management System (CAMMS) to order and track material instead of the depot's normal system became a problem. Difficulties with tracking material under CAMMS proved severe enough to delay the first engine inductions until the second quarter of FY1994 and to postpone the second quarter's inductions until the last day of the quarter. In essence, a stop work condition existed during the initial phase of the contract which was not rectified until the contract was modified to remove CAMMS. The depot did not submit a claim to compensate for costs incurred as a result of delay and disruption. This is not the course of action we would expect from a private contractor.

SCOPE OF REVIEW

The purpose of our review was to evaluate NADEP JAX's ability to estimate costs. We also reviewed whether or not NADEP JAX is in compliance with the Cost Accounting Standards (CAS), the cost principles set forth in Part 31 of the Federal Acquisition Regulation (FAR) and its compliance with the requirements included in the cost comparability handbook.

The scope of our review included a study of the structure of the J-52 solicitation and a review of NADEP JAX's cost proposals submitted in response to the solicitation, including the depot's use of engineering standards and its job cost accounting system. We analyzed the production overhead and general and administrative rates used for forward pricing and reviewed predetermined indirect costing rates applicable to the nine month period ending June 30, 1994. We toured the engine facilities and reviewed the depot's processes for developing labor standards, efficiency factors, and labor expense reporting. Cost comparability adjustments were reviewed, including a determination as to whether or not indirect costs included bid and proposal costs, home office expenses and other adjustments required in the cost comparability handbook. Bid and proposal costs were compared to the savings projected by the contract. Lastly, we reviewed the actual costs incurred applicable to the six completed engine repairs under the contract.

Source selection documentation and DCAA reports were not reviewed. However, telephone discussions with the NAVAIR procuring contracting officer, the cost/price proposal team leader, the Administrative Contracting Officer (ACO) and other officials involved in contract administration provided us with the insight we needed to determine NAVAIR's reaction to and negotiations on NADEP JAX's proposal. In addition, we had extensive discussions with NADEP JAX's J-52 proposal team, the depot's business office, comptroller and cost center personnel involved in the competition and/or contract performance and the Commanding Officer. These discussions were free and open and documentation was promptly made available.

SOLICITATION

NAVAIR attempted to structure the solicitation to level the playing field for the private and the public sectors. Material was to be provided as GFM. In addition, NAVAIR required offerors to use the Contractor Aviation Material Management System (CAMMS), a government-provided ordering and tracking system to acquire GFM. Also, the contract was to be assigned to the Defense Contract Management Command (DCMC) for administration regardless of the winner. If a public depot won, it would not be business as usual.

NAVAIR also tried to remove much of the risk associated with trying to estimate what components required repair and how often those repairs will be required by having the competitors propose prices in three distinct areas: Basic Fixed Price Items, Fixed Price Over and Above Items and Fixed Hourly Rates. Basic fixed price items cover those services to be provided that are

standard such as: tear down and inspect, reassembly and final testing. Basic services were broken down into the following four contract line item numbers (CLINs): Minor Repairs (CLIN 0001), Major Repairs (0002), P8C Conversion (0003) and P408A Conversion (0004) which are summarized in Appendix (A).

The effort associated with basic fixed price items involved only about 25% of the total repair effort. The bulk of the repair work is contained in CLIN 0011 for fixed price over and above repairs. CLIN 0011 covers separate firm fixed prices for some 330 different repairs which may be required during the course of a maintenance action. In this manner, the competitors did not have to guess how many of the 330 items would be required for a typical major repair or how often they would occur for that matter. CLINs 0009 and 0010 for power plant changes and bulletins respectively were also included in the fixed price over and above category; however, the power plant changes to be covered were spelled out, and the handling of power plant bulletins was included in the price for basic fixed price items (CLINs 0001 - 0004). When a repair was required that was not defined in any of these CLIN's, then the fixed labor hour rate contained in CLIN 0012 would come into play for pricing the work.

The structure of the over and above work required NADEP JAX to develop a unique automated system to track and allocate these costs. The system placed in service overstates costs associated with the over and above efforts. As we were advised, the system applied the cost to install a set of 66 blades to each individual blade. Program problems had not been corrected as of the end of our activity visit in early October 1994; therefore, we could not review actuals for the bulk of the contract work performed under the J-52 engine contract. Private industry would, in our opinion, have corrected this programming problem as a high priority fix. Until this program problem is addressed, cost management cannot be achieved.

LABOR HOUR ESTIMATES

Labor hour estimates were derived from engineering standards tailored specifically to the requirements contained in the NAVAIR statement of work and factored by the depot's efficiency in performing within the hours contained in the standards. The efficiency factor used in the proposal was developed by NADEP JAX after a J-52 engine process review was conducted under the depot's own repair specification. The process review resulted in a reported efficiency of 72.4%. This closely correlates with the 75.12% historical efficiency on the J-52 engine program from third quarter FY91 to second quarter FY92.

An indepth analysis of J-52 performance was then conducted by NADEP and new efficiencies in processes were identified and incorporated into the master data records (MDRs) developed for the competition. The efficiency factor used by NADEP JAX in the best and final offer and accepted by NAVAIR was 95%, an increase of over 20% in efficiency in many cases from the depot's historical performance. We looked for these improvements in our sample of six engines completed in FY1994.

Figure 1

Engine Number	CLIN	Hours Proposed*	Actual Hours
661517	0002	162.8	246.5
711757	0002	162.8	270.6
650668	0003	247.5	349.4
650554	0003	247.5	357.8
696932	0004	289.8	387.8
678304	0004	<u>289.8</u>	<u>374.0</u>
Totals		1400.2	1986.1
Source: NADEP JAX J-52 Program Data.			

*Note: Hours proposed are estimates derived by dividing the unit prices for each CLIN by the fixed hourly rate of \$50.44.

Actual hours exceeded estimates in the sample by 42%. Part of these additional hours were caused by the delays incurred as a result of GFM tracking difficulties experienced with CAMMS. Part of the added hours may have been because economies of scale were lost when quantities were reduced. At the end of September 1994, NADEP JAX had completed 34 engines instead of the 60 that were planned.

COST ACCOUNTING SYSTEM

NADEP JAX maintains a job order system for both direct and indirect costs. To facilitate the costing of work and services performed, NADEP JAX has established some 30 cost centers which serve budgetary and cost control functions. In addition, NADEP JAX established a separate J-52 cost center (Code 990) for the purpose of estimating, collecting and allocating the production overhead costs applicable to contract N00019-93-D-0188. Previously, the work was performed in the Engine Branch cost center 961. The following cost centers are principally involved in direct engine repairs:

<u>Cost Center Number</u>	<u>Cost Center Name</u>
961	Engine Branch
962	Process Branch
964	Metal Fabrication Branch
990	J-52 Division

Material components that can be readily identified to engine repairs or replacement parts are direct charged to the benefiting job order number. Direct labor dollars that are recorded on each job order number are based on employee real-time hours for the specific operation performed. The actual hours are then factored by the individual employee's actual labor rate plus fringe benefits.

COST ACCOUNTING STANDARDS (CAS)

While we did not perform a comprehensive CAS compliance review, we noted several non-compliance issues, the most notable of which involves CAS 401 which requires consistency in estimating, accumulating and reporting costs. NADEP JAX deviated from its normal method of allocating costs by establishing cost center 990 for the J-52 competition and using different techniques to assign costs.

COST COMPARABILITY

The Cost Comparability Handbook (CCH) dated 10 August 1993 was checked to see if the guidelines were followed by NADEP JAX in the preparation of the J-52 proposal. The items verified included the adjustments taken by the depot for Engineering and Other (Mobilization Planning, MotorPool/Vehicle Maintenance and Military Duty.) NADEP JAX's J-52 cost proposal adjustments were taken in accordance with the CCH; however, some of the required supporting documentation was not available. Cost comparability adjustments reduced the composite hourly rate by \$.87/hour. NAVAIR's cost comparability adjustments were not reviewed.

PRODUCTION OVERHEAD COSTS

The establishment of cost center 990 for J-52 repairs by NADEP JAX was an estimating technique to reduce the amount of total estimated production overhead on contract N00019-93-D-0188. This was accomplished by overestimating the annual number of J-52 direct labor hours and significantly reducing the amount of expenses allocated to J-52 cost center 990.

NADEP JAX estimated 340,700 direct labor hours for J-52 cost center 990 for FY94 when the actual data supported 155,251 hours. (The actual direct labor hours for FY93 were in line with the actuals for FY92.) Based on NADEP JAX's experience as the single site for J-52 repairs for the Navy, there was no sound basis for projecting 200% of the required J-52 direct labor hours to develop cost center 990 indirect rates. Also, the amount of production overhead allocated on a direct hourly basis to the J-52 cost center is less than 50% of the amount allocated to the Engine

Branch, cost center 961. Direct labor hours and production overhead for cost center : 961 and 990 for the nine month year-to-date period ended June 30, 1994 are:

Cost Center	Direct Labor Hours	Production Overhead	Hourly Production Overhead Rate
961 Engine Branch	110,604	\$2,664,120	\$24.08
990 J52 Division	138,871	\$1,486,257	\$10.70
Source: NADEP JAX J-52 Program Data.			

Most of the apparent inequity in allocating production overhead involves tooling costs, depreciation expense, clean-up costs, power plant and plant services costs. We could understand that depreciation expense could vary based on the age of the equipment. However, if significant J-52 equipment is fully depreciated, we would expect increased plant services costs to keep the equipment in repair. However, for the nine months ended 30 June 1994, plant services cost for cost center 990 was \$266,439 whereas the amount allocated to cost center 961 was \$891,586. We found it difficult to understand why the Engine Branch would be allocated approximately 300% more plant services costs when the total direct hours incurred are less than the J-52's.

Our conclusions on production overhead are contentious. Subsequent to our on-site review, NADEP JAX advised that the "extra direct labor hours" we observed in the make up of the J-52 cost center were from the J-52 component repair program managed by Aviation Supply Office, Philadelphia, PA. The repair of engines and components is inseparable for the J-52 program from the depot's perspective and both programs were fully costed coming into the new cost center. Further, the cost center is allocated production overhead costs appropriately. In our plant services example, the depot points out that the J-52 product line occupies roughly 25% of the floor space in the engine facility; therefore, only gets 25% of the plant services costs. The Engine Branch, quite properly, gets the rest. This methodology would not be acceptable under CAS for private firms.

INCURRED COSTS

The costs incurred displayed in Figure 2 for the six engine sample exceeded contract revenues by over 50%.

Figure 2

Engine Number	CLIN	Costs Incurred	Revenues
661517	0002	\$13,702	\$8,213
711757	0002	14,973	8,213
650668	0003	19,196	12,483
650554	0003	20,354	12,483
696932	0004	21,226	14,615
678304	0004	<u>21,452</u>	<u>14,615</u>
Totals		\$110,903	\$70,624
Source: NADEP JAX J-52 Program Data for Labor and Production Overhead Expenses. NADEP Financial Data for G&A rate @ \$19.12/hour.			

Most of the difference (73%) is due to hours incurred in excess of those proposed. Almost all of the remaining difference is about a \$5/hour increase in the G&A rate.³ The number of FY1994 labor hours projected by NAVAIR for the depot, and used to propose the G&A rate, did not materialize.

CONCLUSIONS

The establishment of Cost Center 990 for J-52 repairs by NADEP JAX was an estimating technique to reduce the amount of total estimated production overhead on contract N00019-93-D-0188. This was accomplished by overestimating the annual number of J-52 direct labor hours and significantly reducing the amount of expenses allocated to J-52 cost center 990.

The solicitation schedule, upon which the J-52 engine depot level maintenance contract was based, did not occur in execution. Inductions were delayed by over one quarter. CAMMS had to be discarded to get inductions back on track. Quantities were reduced because A-6 aircraft engines were not inducted as planned.

Cost incurred for basic services (CLINs 0002 - 0004) during FY1994 appear to exceed contract revenues by over 50% based upon a six engine sample of the 34 engines completed and shipped in that fiscal year. Delays and quantity reductions contributed to the extra costs; however, the use of the 95% efficiency factor proposed by NADEP Jacksonville appeared to be overly optimistic. In our engine sample, hours incurred exceeded hours proposed by 40%. We did not have access to data for the fixed price over and above work because of programming problems

³ Later NADEP JAX estimates recorded G&A rates for FY94 at about \$16.65/hour. Incurred costs at this G&A rate still exceed revenues by about 50%.)

with the system designed to collect and allocate these costs. As a result, we could not determine if the depot was successful or not in achieving the 95% efficiency factor in the over and above work, where the preponderance of the depot's repair costs were being incurred.

Lastly, incurred G&A rates exceeded the rate proposed by between \$3/hour and \$5/hour. In contrast, the overhead rate observed from the engine sample did not differ substantially from the proposed rate of \$14.12/hour and reflects the manner in which the J-52 cost center was established. The make up of the cost center, however, should not obscure the fact that command-wide overhead reductions have been made over the last four years. During this period, NADEP JAX successfully reduced its command-wide production overhead rate from \$27.90/hour in FY1991 to a reported \$17.23/hour in FY1994.

NADEP Jacksonville did not submit a claim or request a price adjustment for schedule delays and quantity changes. This is not the course of action we would expect from a private company which had its performance impacted by the customer. The fact is that the depot did not need to submit a claim since all of its J-52 costs were being covered from one funding source or another. Under these circumstances, accountability for performance is diluted. NADEP JAX made many improvements in its management and control of costs; however, on the J-52 engine competition, performance was impacted by induction delays, use of CAMMS, reduced engine quantities and programming problems. The impact of these issues compared to optimistic pricing could not be specifically determined from records.

J-52 BASE YEAR PRICES

BASIC FIXED PRICE ITEMS

Item	Supplies or Services	Estimated Quantity	Unit Price **	Total Price
1	Perform Minor Repair of J52	Estimated 12	\$ 5,527.06	\$ 66,324.72
2	Perform Major Repair of J52	Minimum 38 Expected 95 Maximum 118	\$ 8,218.00 \$ 8,213.35 \$ 8,212.00	\$ 312,284.00 \$ 780,268.25 \$ 969,016.00
3	J52-P8B to J52-P8C Major Repair Conversion (PPC 290)	Estimated 10	\$ 12,483.16	\$ 124,831.60
4	J52-P408 to J52-P408A Major Repair Conversion (PPC 290)	Estimated 50	\$ 14,615.49	\$ 730,774.50
5	Technical Data in Support of Items 0001 through 0004			*
6	Administrative Data in Support of Items 0001 through 0004			*

FIXED PRICE OVER AND ABOVE ITEMS

9	Power Plant Changes			\$ 335,301.89
10	Power Plant Bulletins			*
11	Fixed Price Over-and-Above Repairs			\$2,794,157.35

FIXED HOURLY RATE OVER AND ABOVE

12	Direct Labor Effort	Exp. 17,400 Max. 80,100	\$50.44	\$ 877,656.00 \$4,040,244.00
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OTHER OVER AND ABOVE ITEMS

13	Material			NSP
14	Travel			NSP

* Included in items 0001 - 0004

** The unit price for the estimated quantities is firm regardless of quantity ordered

Appendix A

F/A-18 Modification, Corrosion and Paint Program (MCAPP) Case Study

Ogden ALC

**Coopers
& Lybrand**

Coopers & Lybrand L.L.P.

a professional services firm

EXECUTIVE SUMMARY

F/A-18 MODIFICATION CORROSION AND PAINT PROGRAM (MCAPP) COMPETITION CASE STUDY

Two private firms, the Navy Aviation Depot, North Island (NADEP NI) and Ogden Air Logistics Center (OALC) competed in a public versus private competition for the F/A-18 modification, corrosion and paint program (MCAPP). A formal source selection process was used involving a Source Selection Evaluation Board (SSEB) and a Source Selection Advisory Council (SSAC). The tactical aircraft Program Executive Officer (PEO-T), Naval Air Systems Command, Washington, DC, was the source selection authority (SSA). OALC was awarded the contract at an estimated value of \$60.8 million.

The current debate over whether public versus private competition can be conducted on a "level playing field" obscures the distinction between unavoidable differences and unfair advantage. Our research indicates that public versus private depot differences in experience, resources, and workload cannot be eliminated and the procuring activity has no responsibility to reduce the advantages one competitor may have over the other. Procurement regulations, as well as the principle of maximizing potential benefits from competition, requires eliminating unfair advantages. We believe OALC had unfair advantage over its private competitors in the areas of cost estimating, inequitable application of accounting standards, inaccurate job costing, adequacy of internal controls and audit scrutiny. Although our review focused on OALC as the winner of the F/A-18 MCAPP competition, a review of data leads us to conclude similar unfair advantages would exist if NADEP NI, the other public offeror, had won.

PROPOSAL COSTS

In a public versus private competition such as the F/A-18 MCAPP, offers from private companies are firm fixed price with the understanding the offeror will receive only the contract price for performance. Though a contract to a public depot would include a firm fixed price, the award is analogous to a cost type contract. All costs incurred will be borne by the government, in one appropriation or another. From the buyer's perspective the price is fixed; from the standpoint of the seller, in this case OALC, costs in excess of the contract price will be paid by other customers of OALC or through other appropriations. This would be true if either of the public depots were awarded the contract. This disparity in risk of economic loss, together with the strong pressure to win in order to maintain depot workload, creates a great incentive for public depots to underestimate and misallocate costs.

The tendency to underestimate costs was evident in the public depot proposals. DCAA reported that OALC understated its original proposed costs by 36%. Similarly, DCAA cited

NADEP NI for underestimating its costs by 37%. Though its best and final offer is more closely aligned to DCAA's recommendations and fully complies with the Cost Comparability Handbook, OALC's final offer still represents a significant understatement of costs since the BAFO did not include estimates of higher than normal start up costs for the maintenance of an aircraft on which OALC had no experience. Several significant support functions were also omitted from the estimates. While the Cost Comparability Handbook can ensure that categories of costs are addressed, it cannot impose "cost realism" on public depots, where the weight of incentives encourages them to obtain the work, not to price it properly.

ACCOUNTING STANDARDS

GAO and DCAA audit reports prior to contract award addressed serious deficiencies in accounting and internal controls at OALC. Subsequent audit follow-up, with pressure to correct the problems, was not made. If a private firm were cited for similar deficiencies with no evidence of improvement, it is questionable whether the contract would have ever been awarded or if awarded, whether all costs could be recovered. This unequal requirement to implement audit recommendations, to the extent they impact the ability of an organization to estimate and track contract costs, provides a clear competitive advantage to OALC, as a public depot.

In addition, although the Cost Accounting Standards (CAS) are incorporated into the DoD Accounting Manual with which the depots must comply, there are significant variations in the way certain standards are applied, resulting in lower costs charged to contracts by public depots. For example, CAS 404 and 409, dealing with depreciation, and CAS 406, covering accounting periods, are treated differently in the DoD Accounting Manual. Also, CAS Disclosure Statements describing contractor accounting practices that must be consistently followed are not required of depots. We conclude that the significant differences in application of standards and requirements for disclosure practices, results in an unfair advantage to depots in public versus private competition.

CONTRACT COSTING

Our research at OALC revealed considerable inaccurate contract costing and reporting practices. Examples include:

- a) Direct Labor. F/A-18 direct labor costs are not being accurately recorded. In our examination of an indirect Resource Control Code (RCC), we found significant numbers of direct employees working on the F/A-18 with their time charged to an indirect account, resulting in hours and costs being allocated to other programs, understating F/A-18 costs.

- b) Production Overhead. We found instances of significant misallocations of production overhead. For example, we examined four high cost indirect RCC's that do not assign costs to the F/A-18 project and found that three of them perform work for the F/A-18. Such examples of common costs not charged to the F/A-18 represent misallocations which distort project costs. Since private firms must assign such costs to the contract, such distortions represent an unfair advantage to OALC in both mischarging current work as well as pricing future F/A-18 work.
- c) General and Administrative. OALC's use of a direct labor hour base to distribute its G&A expenses is at variance with the Cost Accounting Standards Board's stated preference and DCAA's common position with industry requiring use of a total cost input base. In addition, we found several examples of erroneous allocations (i.e., depreciation and plant services) that resulted in less than accurate G&A costing on the F/A-18 contract.

INTERNAL CONTROLS

We have observed many instances of internal control deficiencies at OALC that ultimately impact the true cost of contract performance, such as:

- a) Poor controls over labor cost recording. We found numerous examples of employees not certifying the accuracy of their time charges and a lack of supervisor's verification of labor utilization reports.
- b) Poor control over the Production Overhead Administrative Table. The table represents the mapping of what indirect expense RCC's are charged to what programs. The decision making process is managed informally at very low levels in the organization. Very little attention is given to proper charging as reflected by the lack of management approval or monitoring of program support changes to the administrative table.
- c) Negligible Project Cost Control. Our interviews and the review of data confirm that schedules and quality have and continue to be paramount concerns at OALC, while cost control has been a low priority. Interviews with senior officials, F/A-18 production managers and examination of project control data, indicate this "cultural bias" is still prevalent. We found little evidence of the focused cost management normally practiced by industry.

AUDIT SCRUTINY

The depots are not subjected to the audit oversight that industry experiences. Normal industry oversight from internal audit, outside financial audit and government audit is virtually absent from depots. DCAA, by direction of the DoD Comptroller, is limited to reviewing forward pricing activities. Interviews with the Air Force Audit Agency indicates there are no plans to audit F/A-18 program incurred costs. We believe the absence of close audit scrutiny provides little incentive for tight control over depot accounting and project management practices and consequently, allows opportunities to distort proposals and project costing.

Identification of weaknesses by independent auditors can provide the motivation to improve. The absence of audit scrutiny at OALC provides little incentive to improve internal controls. Consequently, the depots have an unfair advantage over industry in as much as their internal control practices are not held to as high a standard as those of private firms. The pressure to improve internal controls together with the fear of inviting greater audit scrutiny provide industry strong incentives to improve estimating, costing, program management and budgeting. These incentives are largely missing from OALC, providing the depot a major unfair advantage over industry competitors. Inaccurate costing will allow depots to continue to underestimate competitive proposals. The undercharging of competitive awards results in higher costs assigned to non-competitive programs. This often results in depots forecasting higher costs for the non-competitive programs and higher budget requirements. The depots are then able to recover losses on the competitive awards, which they underpriced. Such opportunities are rarely experienced in industry. We conclude that this process provides depots an unfair advantage in their pricing and costing activities.

CONCLUSION

We believe because of their maintenance experience, the ability to spread common costs over numerous programs, and close support relationships with customers, depots enjoy considerable legitimate advantages over private industry when competing for maintenance contracts. However, on the F/A-18 contract, OALC did not enjoy the above advantages. The OALC also does not have the systems, experience, training, internal controls, and audit capability to effectively estimate, track and manage specific contract costs, that would be required of a private firm. Until these deficiencies are corrected, a depot such as OALC has considerable unfair advantages over industry where these deficiencies would normally not be accepted. Until a systematic review and comprehensive corrective action plan is developed and implemented, the OALC will continue to improperly allocate costs.

The OALC offer on the F/A-18 was optimistic. Our review indicated that costs are being overrun at this early stage of contract performance. It is our opinion that the F/A-18 costs will significantly exceed the contract price. The difficulty in quantifying the overrun is the lack of

predictability in the accumulation of costs and the absence of internal controls, which could identify problems of mischarging or misallocation to management. In our opinion, the true costs of the contract will only be determined by an incurred cost audit after a substantial part of the contract is completed. Under these circumstances, competition with private firms, which are properly held to much more demanding standards, is clearly unfair.

In addition, based on our review, public versus public competition is also unfair and can provide misleading results. Where two or more public offerors have different estimating and accounting systems, varying abilities to comply with regulatory standards, few internal controls, little influence over future workload and cultures that focus on schedule and quality, competition between these entities is unlikely to discern the most efficient or productive. Therefore, we believe that assignment of workload to depots should be based on criteria other than or in addition to public versus public competition.

If future public versus public or public versus private competition is held, substantial efforts must be made to require public depots to estimate and account for costs to the same standards to which industry is required in order to achieve fairness and a degree of confidence that performance to the contract price can be managed and monitored.

INTRODUCTION

In July 1992, the Ogden Air Logistics Center (OALC) submitted a firm fixed price proposal to the Naval Air Systems Command (NAVAIR) in response to request for proposal RFP N00019-92-R-0001. The proposal for \$55.3 million was for the Modification, Corrosion and Paint Program (MCAPP) for the Navy's "Hornet" F/A-18 aircraft including \$1.4 million in cost comparability adjustments. The DCAA reviewed this proposal and found it to be understated by \$19.9 million including \$2.6 million in understated cost comparability adjustments.

On June 7, 1993, the OALC presented its BAFO proposal in the amount of \$63.7 million (including \$3.1 million in cost comparability adjustments) to NAVAIR. DCAA also reviewed this proposal and concluded it was acceptable for evaluation. They recommended a price increase of \$3.6 million of which \$.7 million was for increased cost comparability adjustments. DCAA's lower recommended price on the BAFO versus the original proposal is based primarily on their lower recommended production overhead rate (6.7% versus 8.7%) and G&A rate (7.3% versus 10.6%) at the later point in time. The lower indirect rates reflected in the OALC BAFO was based upon (i) higher direct cost estimates and (ii) lower estimated overhead costs. DCAA concurred with these changed estimates.

F/A-18 MCAPP PROPOSAL

Study of the BAFO proposal and the related audit report indicates the major issues that contributed to the original \$20 Million understatement of estimated costs had been addressed in OALC's final proposal. For example, DCAA increased manufacturing support hours and resultant costs by \$2.8 Million. In its proposal OALC used an overly optimistic 6.25 to 1 ratio of direct to indirect employees. OALC, at the aircraft directorate level (LA), was currently experiencing a 4.39 to 1 ratio. DCAA adjusted the current ratio to reflect (i) planned movement of employees from indirect to direct during FY 1993, and (ii) direct charging of engineering support on this contract (this is normally an indirect cost). These adjustments resulted in an audit recommended ratio of 5.25 to 1.

In computing its manufacturing support hours, OALC, in error, removed field team (offsite work) hours from the direct labor base to which its 6.25 to 1 ratio is applied. Field team effort was included in direct labor used to compute the direct/indirect ratio, and even though direct effort may be offsite for a time, the OALC indirect effort remains at a fixed level. If OALC had properly included field team hours, even at a 6.25 to 1 ratio, it would have included an additional 73,165 hours in its proposal.

The OALC's yield factors and estimates of fringe benefits were also considered inaccurate, resulting in an excessively high computation of non-direct time applied to direct

labor. OALC proposed to reduce sick leave usage by approximately 50 percent through the implementation of a new sick leave awareness policy. Given the economic climate and past history of sick leave usage, DCAA did not believe the results would be as dramatic as proposed. Additionally, OALC proposed a 96 percent efficiency factor. The efficiency factors experienced by OALC's aircraft directorate over the last 3 years had never exceeded 90 percent. The FY 1992, efficiency factor was approximately 88 percent. Based on past performance, it was not expected that performance would exceed 90 percent.

Adjustments to the production overhead and G&A base were also recommended. OALC calculated these bases on standard hours when the correct base should have been actual hours. This adjustment significantly increased the overhead and G&A allocated to F/A-18 work. Likewise the production overhead and G&A pool composition were found to be missing a number of accounts that DCAA believed were applicable to the F/A-18 maintenance effort. Finally, certain accounts (i.e. Utilities) had been moved from G&A to production overhead with a net effect of decreasing overall F/A-18 costs. DCAA increased the fringe benefit pool to account for certain elements of costs OALC neglected to include in its forecast. The health benefits forecast was also escalated to recognize expected cost increases.

Our review of the current cost comparability handbook, dated August 10, 1993, indicates that no provision is being made for post-retirement health benefits for both The Federal Employee Retirement Systems (FERS) and Civil Service Retirement System (CSRS) employees of OALC. Lack of recognition of the unfunded liability of such post-retirement health benefits is incompatible with the provisions of FASB-106 which requires private contractors to calculate, amortize, and accrue such significant costs (similar to pension expenses).

Overall, OALC was very optimistic in its F/A-18 proposal and omitted or understated significant costs. The DCAA audit partially addressed these issues. What DCAA could not address was the optimistic performance projections where historical costs did not exist. The fact that all costs in a public depot will be borne by the government contributes to the depot's optimism.

COST ACCOUNTING SYSTEM

- a. We studied, in some depth, the accounting for costs under the F/A-18 Contract. There are over 30 sub-systems which contribute data to OALC's cost accounting system (the Depot Maintenance Data Systems Network). The sub-systems can be grouped into 5 broad functions: Requirements, Material, Production, Costs and Other. Overlayed on the cost accounting system are three basic funds: the Depot Maintenance Industrial Fund (DMIF), Operation and Maintenance (O&M) Appropriation fund, and the Cost of Operation Division Fund.

We were informed that GRUMMAN Data Systems is working on the design and implementation of a new accounting/ information system for all ALCs with Ogden as the Depot Maintenance Management Information system (DMMIS) pilot site.

- b. OALC's cost accounting system is a job order cost system. On the F/A-18 MCAPP a separate job order number is set up for each aircraft tail number.

Costs are accumulated in the Depot Maintenance Automated Data System and summarized on a monthly and year-to-date basis in the Depot Maintenance Production Cost System (G072A) and the Budget General Ledger (BGL). The BGL is a partial implementation of the new DMMIS.

Our inquiry also disclosed that cumulative costs through March 31, 1994 on the F/A-18 Program per the BGL and the G072A systems did not reconcile. At the time of our observation, responsible cost accounting personnel were unaware of the difference since they had not attempted a reconciliation of the two reports. In addition, neither of these reports are summarizing all costs incurred in support of the F/A-18. During our review we attempted but were not successful in locating a periodic management report which contained, by cost element, total F/A-18 MCAPP cost accumulated to date. We were informed that no such report is generated. As a result, we conclude that OALC program management does not have sufficient cost visibility in the form of recurring program cost reports to adequately monitor total program costs.

- c. In our review of accounting system adequacy, we studied **Prior Audit Disclosures**. GAO, in its report of February 26, 1991, did not give an opinion on the OALC accounting system as a whole. However, they disclosed internal control deficiencies in material cost areas and also concluded "the method of applying direct labor costs and production overhead is not in accordance with DoD regulations and will not provide the type of cost data needed to price work accurately and monitor weapon system costs."

In its pre-award accounting systems survey audit report of October 13, 1992, DCAA concluded the current accounting system is inadequate in some respects as a basis for pricing future depot maintenance competition. Similar to GAO's conclusions, they also stated the allocation of labor costs from the resource control center (RCC) level may be inequitable resulting in misallocation of direct labor between job order numbers. The auditors were of the opinion that OALC's procedures for accumulating and allocating production overhead and G&A expenses require improvement because (i) not all costs benefiting final cost objectives are included in the cost pools, and (ii) the method of allocating indirect expenses could result in costs not being allocated on a causal beneficial relationship. The DCAA report also addressed internal control deficiencies in recording employee timecharges.

It should be noted that by direction of the DoD Comptroller, the DCAA involvement with public activity depot maintenance competition is limited to preaward reviews. Post award audits, if needed, are to be performed by the military services internal audit organization.

In discussions with the resident chief of the Air Force Audit Agency (AFAA), we were told that their office had not done any work to evaluate the management of the F/A-18 maintenance program. More importantly, audits of those systems producing contract costs have not been undertaken. When the AFAA reviews or uses OALC financial statements, a disclaimer is made as to the adequacy of internal controls or the reliability of data generated by the systems. The one exception to this was a recently performed audit of the Maintenance Material Cost system (G004H). The report concluded internal controls were not adequate.

d. During our review of **Labor Timekeeping Internal Controls**, we visited a number of RCCs and discussed time recording procedures with foreman, supervisors, and data entry clerks. We also examined task/work requests, production count cards, memorandum records of where employees spent their time, exceptioned labor records and system generated G037G daily "actual labor utilization reports". These inquiries disclosed a number of labor timekeeping internal control deficiencies summarized as follows:

- Not all employees are initialing/certifying that their daily labor charges are accurately recorded. Some employees are never informed where their time is being charged.
- Some supervisors are not reviewing prior day G037G labor utilization reports to assure that the time for all employees assigned to them on the prior day was accounted for appropriately. From reviewing the 37G prior day report for one RCC, we noted two hours overtime entered for one employee working in the RCC. However, the 37G report indicated that the employee was on long term loan to another RCC. Therefore, his labor plus overtime was erroneously charged to a RCC that he was not working in. This had been going on for more than two weeks. Supervisors in both affected RCCs were unaware of it because they had not reviewed the daily 37G reports.
- All labor exceptioning is not being done on a daily basis as required. In one RCC, F/A-18 labor exception entries were being held up "until production count earned (standard) hours are in the system". This is not acceptable as entries of actual labor hours should not be influenced by the standards.

Our follow-up review in June reflected that OALC F/A-18 program management is also concerned with the reliability of its labor exceptioning procedure. In this regard, we noted that all direct employees, whose time is defaulted into CLINs 1-5 production (direct RCC MABPCC) on the F/A-18 contract, were reclassified at the beginning of May 1994 to indirect employees (duty code 23) and assigned to indirect RCC MABSXX "Production Integration". In discussing our concern about the reclassification with OALC operations management, we were informed, "... the reclassification was made because labor costs on CLIN 1-5 were too high as all appropriate exceptioning from the direct (default) RCC was not being accomplished". The intent of the reclassification is that no direct labor can be charged to the F/A-18 unless it is exceptioned to it. This is a serious internal control weakness.

In pursuing this issue with OALC, we informed program management personnel that the reclassified employees were commingled with 17 other normal indirect employees. We were informed there is no cause for concern as all time for the formerly direct employees would be exceptioned out of the indirect RCC to the direct programs they work on. We were assured that all duty hour time for these former direct employees would be zero hours in the indirect RCC at month end. However, our check of the May G037G month end RCC labor report proved that this was not the case. The time of approximately 10 of the formerly direct employees was left in the production overhead indirect RCC. Since the cost for this indirect RCC is being allocated to all production programs, the F-16 and C-130 programs are now bearing cost previously identified as direct cost to the F/A-18. We conclude the ability to reassign direct employees to an indirect RCC so easily represents a serious internal control weakness providing the opportunity for significant mischarging.

- e. Another concern is the efficacy of **Labor Standard Hours**. As previously stated, the ratio of total standard hours for completed tasks under a job order to total monthly RCC actual hours is used to assign actual labor hours and cost to job orders. We were informed that visibility as to the reliability of standard hours is available from the Program Depot Maintenance Scheduling System (PDMSS). The PDMSS is separate and apart from the ALC integrated cost accounting system. We were also informed the PDMSS reports would provide actual labor hours directly identified to each job order number. Therefore, we conducted inquiries and reviewed actual labor hour information input to PDMSS. Actual labor hours are entered on form 173 (production count cards) by employees as they complete each task. Standard labor hours are preprinted on each 173 card and are also entered in the PDMSS from the 37E Workload Planning System. An entry clerk, using the 173 production count cards, enters date completed and actual hours in PDMSS. We noted the following internal control problems in actual hour information entered in PDMSS:

- There were no actual hour entries on many cards. Inquiry of the data entry clerk as to what he does in these circumstances indicated uncertainty as to what to enter. Therefore, he enters the standard hours as actual.
- It is apparent from examination of the form 173 cards that some employees enter hours rounded to the nearest hour, whereas standard hours are maintained to the nearest tenth of an hour.
- Card after card disclosed hours entered exactly at standard. Since the cards display the standard hours, it is apparent that employees are influenced by the standards.
- Our inquiries also disclosed there are no written instructions to employees as to how to account for or record actual hours on the production count cards.

In view of these observations, we question the reliability of actual labor hour information in the PDMSS system. We believe the reliability of PDMSS information would be enhanced if standard labor hour information was removed from the 173 cards and if employees were given written instructions on how to complete these cards.

- f. We reviewed indirect expenses at OALC to determine if accounting and estimating practices are consistent and if there are beneficial and causal relationships between the expenses and the final cost objectives to which they are allocated. Our comments on production overhead and general and administrative expense follow:

- **Production Overhead:** Ogden Air Logistics Center (OALC) has an accounting practice which if the CAS standards in DoD 7220.9 were enforced would lead to a CAS-418 noncompliance citation. At issue is the OALC practice of tailoring production overhead pool costs to the specific benefits received by each production direct Resource Control Center (RCC). These tailored allocation methods change frequently and arbitrarily. At a private contractor, each such adjustment of the costing methodology could be considered an accounting change requiring a disclosure statement revision and the preparation of a cost impact estimate.

We conducted inquiries to determine what procedural review and other managerial/internal controls are in effect to assure that the "Administration Table", the system used to assign and allocate indirect RCC costs to programs, is maintained appropriately on a continuous and current basis. This inquiry indicated (i) the function is assigned to representatives from each directorate as well as to an administrative employee who chairs meetings and acts as a coordinator, resulting in no central financial

managerial control or involvement (ii) there are no written descriptions of functions, activities, skills, programs supported, etc., available for the individual indirect RCCs and (iii) there is no evidence of periodic monitoring or reviews to assure that the production overhead administration table is appropriately maintained on a current and continuous basis.

With this background, we reviewed about one-third of the forty aircraft directorate production overhead RCCs to determine whether a causal/beneficial relationship exists between the indirect expenses in the RCCs and the final cost objectives (including the F/A-18 program) to which they are allocated. We identified three high cost production overhead RCCs which are providing support to the F/A-18 program but whose costs are not being allocated to the F/A-18. These indirect cost RCCs are MABETZ (Aircraft Structures Planning), MABPSX (Services Team), and MABRSX (Sheet Metal). The costs of two of these indirect RCCs (MABETZ and MABRSX) also were not included in OALC's initial or BAFO pricing proposals for the F/A-18. Thus, proposed costs as well as costs recorded on the F/A-18 MCAPP program are understated.

- **General and Administrative Expense:** The primary components of OALC's general and administration (G&A) expense, and their related cumulative dollar amounts for FY 1994 through May 1994 are as follows:

Financial Management and Training Division	\$25.6 m
Plant Services	9.3
DMIF/Hill AF Base Support	<u>5.9</u>
Total G&A	<u>\$40.8 m</u>

OALC uses a direct labor hour base to distribute G&A expenses. Total Cost Input is the preferred method for such allocations. If compliance with the standards in DoD 7220.9 were enforced, OALC would be considered in potential non-compliance until it demonstrated that the labor hour surrogate base is compliant with the DoD 7220.9, CAS 410 standard.

The plant services and base support G&A expense components of G&A were reviewed and are commented on below:

- **Plant Services Expense:** In the case of plant services expense, OALC recognizes that total direct labor hours is not an equitable measure for assigning this element of G&A expense to benefiting directorates. Plant services are assigned to directorates using fixed percentages of activity. A comparison of the fixed allocation percentages with actual service percentages and approximate direct actual labor hour percentages is as follows:

<u>Directorates</u>	<u>Fixed Activity Allocation Percentage</u>	<u>FY 1993 Actual Service Percentage</u>	<u>Approximate Direct Labor Base Percentage</u>
Aircraft	28%	21%	43%
Missiles	43	31	15
Commodities	13	28	21
Technology & Industry (T and I) Support	16	20	21
	<u>100%</u>	<u>100%</u>	<u>100%</u>

A concern we have with the fixed percentage intermediate cost pool allocation process is that the fixed percentages are not converted to actual percentages at year-end and have not been revised for several years. The Plant Management (plant services) Division maintains a data base of actual service activity (labor hours) provided to each directorate. This actual service percentage information should be used to periodically update the fixed allocation percentages. However, as shown by the above comparative percentages, OALC's failure to use actual plant service percentages results in significant distortion in G&A expense allocated to the directorates and programs. For example, the Aircraft Directorate received 28 percent of the plant services costs in FY 1993 whereas it should have received only 21 percent.

- **DMIF/Base Support Expense:** We reviewed the procedures used to record and distribute Hill Air Force Base support operations to DMIF activities. These base operations include such activities as data processing, environmental management, procurement, safety support, payroll, accounting, etc. The costs of these operations determined to be applicable to DMIF activities are assigned to G&A and allocated to contract effort based on direct labor hours. Base support costs are subject to the DoD 7220.9 standard dealing with CAS 403.

We reviewed selected base support operations to determine how cost allocable to DMIF activities were determined. We found that for the most part DMIF allocable costs were developed through what OALC personnel

refer to as a negotiation process. This involves a process whereby OALC and base support operations personnel conduct negotiations to arrive at amounts that represent DMIF's "fair share" of the costs of the services being provided.

For the most part, the amounts determined cannot be verified or audited. The costs are not identified and recorded to individual directorates. The amounts considered to be DMIF's fair share are essentially based on the OALC representative and the base support manager's estimate as to the services and goods provided for DMIF. There are, however, some base support operations that are determined and allocated to DMIF using a measurable allocation base. The best example of this is fire protection which is allocated using square footage which results in DMIF being allocated its fair share of costs based on occupied square footage. The latter, however, is the exception rather than the rule. As part of our review we related the practices in place at OALC for accounting for these costs with those that would be in place in private industry to account for similar costs. The findings and observations resulting from our review are discussed below.

Equipment and building depreciation applicable to base support operations are not included in costs allocated to DMIF. We determined that a below the line "cost comparability" adjustment was made for depreciation on the depot's proposal for assets not under DMIF control; however, OALC was unable to provide details on the specific assets included in computing this depreciation adjustment prior to our departure. Therefore, we were unable to ascertain if all the assets included within base support were considered in this comparability adjustment. Private industry would include such depreciation in overhead and would allocate it to contracts.

The base support activities fall under the management control of several outside government entities. Thus OALC has only partial control over how the costs of these operations should be identified to DMIF. There is a degree of decentralization within private industry but not to the extent present in the government. This is best illustrated by the current situation with The Defense Finance and Accounting Service (DFAS) which is the government entity responsible for providing accounting services for OALC. In examining the base support cost of this operation we found that no costs had been allocated to DMIF activities since FY 1992. Thus DFAS accounting support to DMIF, which we estimate to total over \$1 million annually, is not collected and charged to DMIF contract activities. These costs were included in OALC's proposal resulting in a CAS 401 violation if this occurred in private industry.

The negotiation process in use at OALC to determine base support costs applicable to DMIF activities is not a process one would find in operation within private industry. The equivalent costs within industry would either be departmental costs within the entity or, if a service center performing centralized services for more than one entity, the operating costs would be allocated to customers on a beneficial or causal relationship. Thus similar costs within industry would not be subjectively determined, but instead, would be based on costs incurred within a department or costs allocated on some type of a verifiable measurable base prescribed by a CASB standard. Some costs allocated to DMIF are predicated on such a base. The vast majority, however, are determined on the basis of the negotiation process.

CAS 403, as amended by DoD, is applicable to accounting for base support costs. If the CAS standards in DoD 7220.9 were enforced, OALC would be in noncompliance with this standard. We believe several of the base support operations are centralized service functions subject to the CAS 403 provisions contained in DoD 7220.9. Centralized service functions represent those organizations performing services for several segments, which but for the existence of the organization, would be performed by or acquired by some or all the segments individually. Data processing, procurement, personnel, and possibly others, within base support fit this definition and should be allocated to DMIF as prescribed by the standard. The standard requires that these types of expenses be allocated on the basis of the beneficial or causal relationship between the supporting and receiving activities. OALC, therefore, is non-compliant with this standard and the DoD cost accounting manual. This noncompliance, however, must be viewed in light of the fact that full compliance is difficult since OALC must secure an agreement from the supplying base support entity to allocate such costs on some measurable base that is representative of the activity being allocated. For example, we were advised that the data processing operation falls under the Defense Information Systems Agency (DISA) which is in the process of developing an accounting system that provides fee for service billings. The system, however, has not yet been fully implemented and costs are still being allocated to DMIF based on a negotiated estimate of support. OALC, in contrast to private industry, cannot unilaterally assure its compliance with CAS 403.

Based on our observations, we have concluded that not all production overhead costs attributable to the F/A-18 were included in the BAFO or are being costed to the contract. We have also concluded that G&A expenses are not costed to the contract in compliance with DoD 7220.9 or CAS 403. As a result, OALC is not being required to perform to standards imposed on industry.

- g. DOD 7220.9 permits more flexibility in the use of appropriate accounting periods than does Cost Accounting Standard 406. For example, in the preamble to CAS 406, the concept of monthly allocations of overhead and G&A is considered and rejected as not being appropriate for contract cost accounting. However, in the DOD 7720.9 version of CAS 406 (according to OALC's interpretation), monthly accounting periods are permitted.

Our concerns with this procedure are illustrated in the following display of cumulative F/A-18 recorded cost, by cost element, through April 30, 1994 as compared with cost through the prior month.

	Cumulative Through <u>3/31/94</u>	<u>4/30/94</u>
Direct Labor Hours	<u>20,964</u>	<u>23,970</u>
Direct Labor Cost	\$ 489,254	\$ 558,661
Production Overhead	518,069	1,117,694
G&A	<u>169,144</u>	<u>230,524</u>
Total F/A-18 Cost (excluding CLIN14)	<u>\$1,176,467</u>	<u>\$1,906,879</u>

The closing of overhead using monthly accounting periods resulted in distorted relationships between direct labor and indirect expenses and inaccurate assignment of indirect expenses to the program. The cumulative labor and overhead cost relationships shown above are abnormal (labor cost increased by only 14 percent over the prior month while overhead more than doubled) due to a labor cost reclassification entry. Further comments on our review of this reclassification entry are provided in paragraph I (Adjusting Journal Entries).

- h. In OALC's proposal, depreciation expense for DMIF depreciable assets, was included in estimated production overhead and general and administrative expense. Depreciation on assets, not controlled by DMIF, was included in OALC's proposal as a Cost Comparability Handbook adjustment. Depreciation expense for DMIF assets is included in program cost in the production overhead and G&A expenses allocated to the F/A-18 program based on direct production labor hours. We compared OALC's depreciation practices for DMIF assets with those within industry. Our comments and observations regarding these comparisons are summarized below:

We found, at the direction of Air Force Material Command (AFMC) in late 1991, OALC effected a significant change in assigning useful lives to fixed assets installed after 1 October 1991. As a consequence, all asset useful lives were reduced to three categories, 20, 10, and 5 years. Previous useful life guidelines varied by federal stock code and ranged from a low of 4 years to a high of 30 years. These pre 1 October 1991 assets are still being depreciated based on those useful lives.

DCAA noted that no gain or loss on the dispositions of assets is recognized in accordance with generally accepted accounting principles (GAAP). OALC, being a government entity, is not subject to GAAP, but the DCAA comment is a valid observation regarding the differences between depots and industry. Gains and losses, in essence, have the affect of correcting prior depreciation. As a consequence, any over or under statements of depreciation are not adjusted at depots as is done within industry. DCAA also noted in one of its audit reports that they had observed problems relative to OALC's reclassifying assets, excessing certain assets and not assigning proper values to some acquired assets.

OALC uses only straight line depreciation. Industry components often use accelerated depreciation methods which result in a faster write-off of depreciation. CAS 409 permits use of either straight line or accelerated depreciation methods.

OALC is not subject to CAS 404. If it were, its depreciation practices would be in noncompliance with that standard. CAS 404 requires that assets exceeding \$1,500 must be capitalized and depreciated. The AFMC and Depot policy is to capitalize only those assets over \$25,000 for assets acquired since 1 January 1994. Prior to this the capitalization policy was \$15,000. The use of a higher capitalization value, permits OALC to expense and write off more assets in one year than a comparable private industry competitor would be permitted under CAS 404.

If OALC was subject to CAS 409, the practice of having a 10 year useful life for all equipment (except EDP and general purpose vehicles) would be in noncompliance with the standard. CAS 409 requires that the asset life used for depreciation must reasonably approximate the actual period of usefulness. We do not believe that the different types of equipment in use in OALC would all have a useful life of just 10 years. This is supported by the fact that assets acquired prior to 1 October 1991 were assigned lives anywhere from 4 to 30 years. These assets lives, in our opinion, are probably more representative of the useful lives than the 10 years currently being assigned. The use of such a short useful life permits OALC to write off depreciation on equipment at a higher rate than would be permitted by industry.

The Depot, also at the direction of AFMC, computes a residual value of \$1 for all equipment items. Private industry, to comply with CAS 409, must determine residual values for each asset and the residual values must be deducted from the capitalized value of the asset in computing depreciation. This practice enables OALC to write off more depreciation than its private industry competitor who must comply with CAS 409 and compute realistic residual values.

- i. We examined in detail the **adjusting journal entry** involving the reclassification of about 6,600 hours of direct labor to indirect effort. The preponderance of these hours was reclassified to indirect training while a small portion was charged to other production downtime effort. The adjustment was necessary because OALC personnel did not anticipate or properly plan for the substantial production labor downtime subsequently experienced on the initial F/A-18 aircraft. We estimate that the adjustment reduced F/A-18 program costs by about \$185,000. Even though adjusted labor dollars remained identified to the F/A-18, reclassified from direct to indirect, the reduction in direct labor hours, which is the base used to allocate indirect expenses, resulted in the F/A-18 receiving less production overhead and G&A.

We reviewed documentation in support of the adjustment, interviewed personnel responsible for identifying the misclassified labor, and queried top division and directorate personnel regarding their involvement in the adjustment process. We also compared indirect training time charged to the F/A-18 with that experienced on other aircraft programs. Our examination disclosed the entry was properly documented and that personnel responsible for identifying adjusted hours were planner/schedulers, production supervisors, and engineers knowledgeable of the program and problems experienced in servicing the aircraft. We also found that top management within the division and directorate were aware of and involved with the adjustment from start to finish and had reviewed and approved the entry.

We also discovered that training time identified to the F/A-18 was substantially higher than that currently being experienced on the more mature F-16 and C-130 programs. For example, F/A-18 training costs for the first four months of 1994 were 28% of direct labor costs contrasted with 6% for the F-16. These high training costs are not considered unusual since the F/A-18 was the first Navy aircraft serviced by the OALC and, the first McDonnell Douglas aircraft it had performed maintenance on since the F-4. Thus, OALC production personnel had to learn a different aircraft and acquaint themselves with Navy procedures and technical data, resulting in higher training rates during the initial start up of the program. These costs were not included in the F/A-18 BAFO. One may question whether OALC appropriately estimated foreseeable start-up costs in proposed production overhead expense for the new program. In our opinion, a private contractor would most likely have made such provisions in its proposal.

PROGRAM MANAGEMENT

We discussed Program Management with the Commander of the Aircraft Division, the F/A-18 Program manager and their senior staff. Management attention and emphasis are directed to monitoring performance. Detailed analysis of variances between standard and actual hours are prepared by F/A -18 phase (Incoming, Production Line, Flight Test and Paint), by aircraft, by operation number.

Contract quality and schedule oversight have been transferred to The Defense Contract Management Command (DCMC) which was hired by the Navy to perform Administrative Contracting Officer (ACO) functions. We were informed by OALC there are currently about 10 DCMC people on site. Based on the split of F/A -18 workload between the Navy Depot at North Island, San Diego and OALC, about 36 aircraft are expected to be serviced by the OALC this year.

We examined a number of daily and weekly ad-hoc reports used to manage and monitor the F/A -18 Program -- they all related to schedule. The reports detailed each aircraft's status, and its forecasted completion date as it moved through the maintenance process. We were informed cost performance/ monitoring was accomplished indirectly by review of labor hour charges to assure their accuracy.

AFMC has levied a new requirement on the ALCs to prepare a monthly total program cost/schedule performance report with estimates at completion. Variances will be calculated on cumulative costs, schedules, and Estimates at Completion (EAC). Variance analysis is required if costs exceed budgets by $\geq 10\%$, Schedule slips by $\geq 10\%$, and EAC overruns by $\geq 5\%$. Reports are submitted to key customer and ALC personnel. If EAC variance is $\geq 15\%$, reports are elevated to the Center Commander and Headquarters, AFMC. If EAC variance reaches 15% or greater, recompetition will be considered. In our opinion, such measures will be unsuccessful in focusing attention on cost performance on the part of ALC program management. We believe that basic changes involving training, program management tools and internal controls are essential to improve the management of program costs.

The required reports have not yet been prepared by Ogden ALC program management since they are not required until three months of actual deliveries have occurred. The first aircraft delivery under the F/A-18 program was made on May 19, 1994. While WPAFB has levied the requirement for including Estimates at Completion (EACs) on these Depot Maintenance performance tracking reports, no detailed instruction/training on how to prepare these EACs has as yet been provided. We were informed that the Program Management Office has requested such training and instruction. We believe attempting to forecast a total program EAC for other than CLINs 1 through 5 (the basic fixed price Modification, Corrosion, and Paint Program) appears unachievable. CLINs other than 1-5 are for "over and above" work where sufficient forecast information on total program costs is unavailable.

Prudent program management should probably be securing CLIN 1 through 5 costs to date and then forecasting an EAC in the traditional manner utilized by private contractors when preparing Cost Performance Reports. EACs should be prepared on the remainder of the CLINs, by aircraft, as sufficient information becomes available to estimate the costs at completion of the related effort.

CONCLUSIONS

On the basis of our review, we conclude that estimated and recorded costs on the F/A-18 MCAPP program at OALC are not reliable. In addition, there are also significant differences in regulatory requirements imposed on depots versus private industry. The major problems and differences include the following:

- Unreliable labor cost recording practices and internal control weaknesses.
- Questionable reliability of labor standard hours.
- All allocable production overhead on the F/A-18 was not estimated or being recorded.
- Significant start-up (non-recurring) costs on the F/A-18 were not addressed in the BAFO proposal.
- Inaccurate plant service cost allocations.
- Incomplete base support cost allocations.
- Health care costs of retirees not estimated or recorded (FASB 106).
- Difference in DoD 7720.9M versus the Cost Accounting Standards affect different cost allocations.
- Inadequate managerial cost monitoring and reporting.
- DCAA audit role limited to depot proposal evaluations only.
- Very limited Air Force Audit Agency involvement in depot accounting system oversight.

We conclude these basic issues resulted in an unfair competition between OALC and private industry. In addition, based on our review it is worthy to note that the competing public depots have different estimating and accounting systems, varying abilities to comply with

regulatory standards, few internal controls disciplining their individual processes, little control of their future workloads and corporate cultures that focus on schedule and quality, not costs. Given the disparities, it is difficult to conclude that a competition in which fixed prices are projected several years into the future, will be able to discern the most efficient or productive depot. Until the basic processes and systems at the depots are improved, we do not believe public versus public competition provides reliable cost data to decision makers. Therefore, we believe that assignment of workload to depots should be based on criteria other than or in addition to price competition. If either public versus private or public versus public competition are to be conducted as a means of deciding the source for depot maintenance, pre-award estimating and post-award accounting for costs must be improved at the public depots along with the ability to manage compliance.

C141

Center Wing Box (CWB)

Case Study

Warner Robins ALC

**Coopers
& Lybrand**

Coopers & Lybrand L.L.P.

a professional services firm

EXECUTIVE SUMMARY

C-141 CENTER WING BOX (CWB) COMPETITION

CASE STUDY

Coopers & Lybrand has reviewed the C141 Center Wing Box (CWB) competition and subsequent contract performance. Three private firms and the Warner Robins Air Logistics Center (WR-ALC) competed in a public versus private competition for the C141 CWB requirement. WR-ALC was selected and awarded contract FO9603-93-C-0043 on December 12, 1992, for a price of \$62,189,319, including option years. The procuring activity was also WR-ALC with the Commander WR-ALC as source selection authority. In preparation for the competition, WR-ALC created separate "buyer" and "seller" teams, with appropriate restrictions placed on each. On the basis of numerous interviews and the examination of data, the reviewers are persuaded the integrity of the competition and source selection process was maintained despite the appearance of potential conflicts of interest.

The C141 CWB solicitation required the submission of firm fixed prices for the base year plus three option years. The private competitors submitted firm fixed price offers that, if any one of the firms had received the award, the government would be legally obligated to pay only the contract price for performance. The offer of WR-ALC, while represented as a firm fixed price, was analogous to a cost reimbursement offer. The government will be required to pay the full cost of performance, through one appropriation or another. Given this disparity which strongly influences business risk between public depots and private companies, we believe incentives were created for WR-ALC to underestimate costs. Our interviews with both "buyer" and "seller" personnel and review of the planning data for the competition, provide a perspective that the WR-ALC seller felt great pressure to win, proposing direct labor hours and rates that were not supported by past experience.

In the C141 CWB competition, as in other public vs private competitions, questions arose whether the desired "level playing field" was achieved. Our research supports the notion that a government procuring activity has no responsibility to eliminate or even mitigate existing advantages one competitor may have over another such as experience, location or organizational structure. As the C141 depot for over 20 years, the WR-ALC seller had inherent advantages over potential competitors for the CWB requirement that arose from its depot experience. The WR-ALC buyer had no ability to redress these inherent advantages. However, procurement regulations do require that government procuring activities take appropriate actions to preclude unfair advantages in competitive situations. In its multiple roles, as requiring activity, depot and procuring activity, we have concluded that WR-ALC had unfair competitive advantages in the C141 CWB competition for the following reasons:

- a. As the assigned depot for the C141, aircraft were scheduled for induction into WR-ALC for other projects including Program Depot Maintenance (PDM) and a Paint project. These projects shared common tasks with the CWB including incoming inspections, aircraft buildup and functional check flights. The

WR-ALC buyer, through a clause in the solicitation, allowed the seller to charge the costs for common tasks to the other projects. This violates the Federal Acquisition Regulation and Cost Accounting Standards by eliminating the normal allocation of costs based on causal/beneficial relationships. The benefit of this opportunity to share common costs amounts to between \$7.1 and \$13.0 million, depending upon the mix of aircraft inducted for CWB replacements. It surely is unfair in a competition to direct the only competitor who could essentially benefit from commonality to charge other projects, especially since the government and individual customers would benefit to the same extent from the commonality if these costs were allocated or charged based on a causal/beneficial relationship to each of the projects, including the CWB. Where a private firm is able to achieve similar economies of scale among contracts, the firms are required to allocate the costs among the contracts. The WR-ALC seller was also provided a price increase of \$241,000, we believe inappropriately, when the mix of the first 5 aircraft changed from that which the WR-ALC seller anticipated in its offer, though no schedule mix was provided as a condition for the pricing in the solicitation.

- b. While the competition was in process, WR-ALC performed a prototype and 3 trial CWB installations on tooling and equipment bought for the contract requirement and installed at WR-ALC. While the prototype CWB installation can be rationalized as a verification of tooling, data and replacement kits, the trial installations during the competition provided extensive training. This opportunity was not afforded other competitors and allowed specific processes and procedures to be developed, beyond the data provided to all competitors.
- c. The Federal Acquisition Regulation and Cost Accounting Standards require private contractors to establish and maintain systems that enable the company, if awarded a contract, to comply with applicable regulations. DCAA audit reports prior to contract award addressed serious management deficiencies in estimating, accounting and internal controls at WR-ALC. In our opinion, if similar deficiencies were addressed at a private firm, the ability of the firm to manage and account for costs and fulfill its contract responsibilities would have been challenged. To the extent that system deficiencies impact proper charging of costs and similar criteria are not applied to public and private offerors, a clear competitive advantage is provided the public offeror, where all costs will be recovered.
- d. In order to reduce direct labor costs, WR-ALC proposed a direct labor workforce in which approximately 54% of the employees are classified as temporary or non-permanent employees. This substantially reduces labor costs, specifically fringe benefits. The practice raises significant issues regarding the maintenance of depot skills and capabilities. In the opinion of the reviewers, the acceptance of an offer from a private firm proposing to establish a workforce comprised of 54% temporary workers would be questioned in the source selection and might not be

acceptable for critical aircraft repairs. In this case, the source selection documentation did not address the issue.

In the face of competition, WR-ALC developed a price offer that was not supported by data or experience. The initial offer was substantially lower (approximately 40%) than the \$62.2 million best and final offer (BAFO), which became the contract price. The increase between the two WR-ALC offers occurred when omissions and errors in the initial proposal were uncovered in the audits and addressed in discussions. Significant increases or decreases in prices between initial offers and BAFO's normally lead to major source selection questions regarding the offeror's understanding of the requirement. In this case, it should have raised issues with regard to WR-ALC's ability to project and account for costs. The labor hours, direct and indirect rates proposed were significantly lower than experience supports and that which is being charged C141 customers for non competitive projects. The clear objective of the WR-ALC seller team was "to win".

With 28 of the scheduled 113 aircraft inducted for the CWB, a loss is being incurred, mischarging of costs is taking place and reports do not accurately reflect the program cost status. These points are exemplified by the following:

- a. From the applicable DMIF revenue and cost accounts through April 1994, costs incurred are \$11,882,949 and revenues are \$9,601,722. The cost accounts do not include \$224,000 represented as costs accumulated manually after contract award and prior to the first aircraft induction in April 1993. When added, this computes to a program loss of \$2,505,227, through April 1994. The formal depot maintenance cost report for the same period, which only includes aircraft that have gone to final sales, reports a loss of \$855,000 on costs of \$2,499,000 and revenues of \$1,644,000.
- b. The C141 PDM and CWB programs have a total of 99,782 hours charged to a training account from April 1993 through May 1994. Of this total, 84,976 hours or 85.2% were charged by CWB personnel. Interviews and a review of data confirms that substantial portions of those charges involve employee "on the job" training, with direct labor hours worked on the C141 CWB charged to the training account. This practice understates direct labor and indirect costs (overhead and G&A) where costs are based on direct labor hours. It results in cost mischarging. Our estimate is that the practice has understated costs to date by approximately \$3.0 million on the CWB.
- c. Indirect costs are not being allocated properly, which understates the C141 CWB costs. A review of 21 support organizations found 15 charging the C141 PDM Resources Control Code (RCC) but not the CWB. Based on a preliminary review, at least 9 of the 15 support organizations should have substantial effort allocated to the CWB, which is directly benefitting from the support, including engineering, human resources/administration and the production/financial branch. This misallocation understates production overhead on the CWB.

- d. The depreciation expense included in the BAFO was \$704,355 annually. Our review questioned the methods of allocating depreciation expenses and other practices, including the application of very conservative useful life guidelines. In any case, depreciation expenses allocated to the CWB for the first 7 months of FY 94 were \$132,756, substantially below that which was proposed and significantly less than appropriate.

The contract award to WR-ALC resulting from the C141 CWB competition contains fixed prices for the basic requirement. In contrast, the Defense Management Industrial Fund (DMIF), which supports the C141 CWB work, operates under the principle of full cost recovery. This conflict between pre-established prices and full cost recovery provided the impetus to review the billing process. Based on our review of a sample of completed and in-process aircraft, an arms length billing relationship between the WR-ALC depot and its customers could not be established. Where the buyer is paying with appropriated O&M funding, the funds were transferred to DMIF in the form of advance payments prior to performance. Where the industrial funds are also the source of the buyers' funds, periodic billings or transfers were made with no consistent pattern and without relation to physical progress. We were unable to rationalize unit contract prices plus the price of government furnished material with the billings. This is inconsistent with the structured, arms length process required of private commercial firms. The general pattern of performance, acceptance and payment was not established. It could not be determined what DMIF has or will receive for CWB work, including payments for those aircraft which are completed.

In estimating its costs, the WR-ALC offer was based on professional judgements, without reliance on existing standards or actual performance data. The WR-ALC accounting systems do not provide true product costing. In our opinion, the basic systems necessary to account for and manage costs in a reasonably comparable way with industry are not in place. Few internal controls exist. While the competition for the C141 CWB may have served well as a surrogate to achieve other management objectives, in our opinion it was unfair, costly and unnecessary. The offerors collectively incurred approximately \$1 million in Bid and Proposal (B&P) expenses, most of which will be borne by the government. The administration of the contract outside of the normal depot process is estimated at \$1.5 million. The competition itself is estimated to have cost \$1.8 million. WR-ALC enjoyed substantial inherent and constructed advantages in the C141 CWB competition. As a public entity it is not held to the basic estimating and accounting criteria required of private defense contractors. Therefore, subjective and objective comparisons between the public and private offers received on the C141 CWB were practically impossible, whether based on price or best value. Although the disparity in proposed prices between WR-ALC and the lowest private firm is very significant, where public and private offerors are operating under different rules, the results of the competition do not provide any relative measure of productivity or efficiency. Rather, the sizable differences reflect aggressive pricing of a public depot, without the regulatory requirements, economic risks or penalties that a private firm would have to consider.

We believe that as the C141 depot, WR-ALC was singularly in a position to achieve economies of scale by combining several C141 projects to reduce aircraft downtime and costs. Our review leads us to the conclusion that WR-ALC is the most economic source for the C141 CWB, given its overwhelming advantages as the aircraft depot. However, WR-ALC does not have the systems, experience, training or internal controls that allow it to estimate costs and manage cost performance to specific objectives similar to that required of a private firm. The competition did not result in WR-ALC significantly improving systems or processes to reduce or even measure the costs of performance. It is clear the true costs of performance will substantially exceed the contract price and in our opinion will only be determined by an incurred cost audit subsequent to performance. Nevertheless, it is also the reviewers opinion that overall C141 CWB costs would have been reduced if the project had been assigned or allocated to WR-ALC without incurring the costs of an unfair competition.

INTRODUCTION

In November 1991, Warner Robins Air Logistics Center (WR-ALC) recommended to the Air Force Logistics Command (AFLC) that it be authorized to conduct a public vs private competition for replacement of the C141 Center Wing Box (CWB). The decision to replace a significant number of C141 CWB's had been made in the late 1980's. This decision resulted in the award of contracts F09603-87-G-0741-0049 and F09603-89-C-2585 to Lockheed Aeronautical Systems in September 1989 to design a new Center Wing Box and tooling for the replacement, a data package, long lead forgings for main frames and 121 center wing box kits. The contracts were valued at approximately \$149.5 million. The contracts also required Lockheed to perform a prototype installation to validate the design, tools, data and kits and also to provide technical support to WR-ALC in performing a prototype installation. The CWB kits, comprised of approximately 12,000 components, were delivered late 1991 through December 1993.

WR-ALC had been the assigned depot for the C141 aircraft for over 20 years. When authorization was received in late 1991 to compete the CWB installation, a substantial number of C141 aircraft were flowing through the depot annually for program depot maintenance (PDM), a paint project, a speedline project and other maintenance. The depot, based on its actions prior to the competition decision, anticipated that the CWB work would be assigned to WR-ALC. Three aircraft had been inducted to perform prototype and trial CWB installations in August 1991 (aircraft 66-0139), September 1991 (aircraft 64-0631) and November 1991 (aircraft 65-0269). Two mating/demating fixtures and other tooling were installed at WR-ALC. WR-ALC was prepared to perform the requirement when the decision was made to compete.

There are two basic funds used at WR-ALC; the Depot Maintenance Industrial Fund (DMIF) and the Weapon System Fund (O&M). DMIF is a revolving fund. Customers receive maintenance services from the depot. The customer pays the bill, replenishing the DMIF's cash. O&M is an appropriated fund which finances those functions considered outside the depot, although O&M funded personnel also work within the product directorates. O&M costs are supposed to be allocated to depot projects on the basis of a causal/beneficial relationship. We determined that proper allocations are not taking place.

The C141 CWB case study involved an assessment of the policies, procedures and practices used by WR-ALC as both "buyer" and "seller" measured subjectively against what would be expected of a government buyer competing a requirement in industry and a commercial seller in responding to the requirement. We reviewed records and data provided by the WR-ALC "buyer" and "seller". We evaluated the regulatory requirements, accounting principles and practices involved with numerous issues. Since the source selection data is marked "Source Selection Sensitive," several reviewers signed non-disclosure statements. This report attempts to discuss the issues without revealing specific source selection sensitive or proprietary information. Access to Defense Contract Audit Agency (DCAA) reports was provided. The Air Force Audit Agency (AFAA) would not provide access to its draft audit on the C141 CWB.

PLANNING FOR THE COMPETITION

In preparation for the competition, WR-ALC separated itself into a "buyer" team that would represent the procuring activity and source selection authority and a "seller" team, which would respond to the solicitation, organize itself for the competition and if awarded the contract, perform as the winning contractor. The Commander, WR-ALC, was the Source Selection Authority (SSA) and essentially the leader of the buyer team. The head of the seller team was The Deputy, C141 Program. Based on a review of data and numerous interviews, the administrative separation of the buyer and seller appeared to be successful. It does not appear that information was exchanged between team members even though the separation forced people, who were accustomed to working together, to not share information. Subsequent to the C141 CWB competition, an Air Force Material Command (AFMC) policy was issued which would have precluded the Commander, WR-ALC from serving as the Source Selection Authority. The revised policy would eliminate the appearance of a conflict of interest in future competitions, which exists when a depot acts as a buyer and seller, with the Source Selection Authority as part of the buyer team.

As the "buyer" team organized the solicitation and source selection, the "seller" team continued with what it had been doing prior to the decision to compete. The seller team proceeded to complete the CWB prototype and two trial installations. A fourth aircraft was inducted in January 1992, (aircraft 65-0276), for another trial installation. The prototype and three trial installations were completed between December 1991 and October 1992, after the decision to compete and during the conduct of the source selection. The data for the prototype and trial installations are shown in Figure 1.

Figure 1

AIRCRAFT NUMBER	DIRECT LABOR HOURS	DIRECT LABOR COST	MATERIAL COST	PROD. OVERHEAD	G&A	TOTAL COST
64-0631 (FEB 92)	33,289	\$629,993	\$915,057	\$700,358	\$264,860	\$2,510,268
66-0139 (FEB 92)	15,995	\$293,511	\$808,251	\$450,271	\$72,180	\$1,624,213
65-0269 (MAY-AUG 92)	22,789	\$416,567	\$770,225	\$594,172	\$61,567	\$1,842,531
65-0276 (SEP-NOV 92)	16,475	\$306,153	\$867,413	\$484,562	\$39,548	\$1,697,676
TOTALS	88,548	\$1,646,224	\$3,360,946	\$2,229,363	\$438,155	\$7,674,688
AVERAGE	22,137	\$411,556	\$840,237	\$557,341	\$109,539	\$1,918,672

Source: Warner Robins ALC Document, C141 Center Wing Box Prototypes

In addition to performing on the trial installations, the WR-ALC seller also looked for ways to scrub its estimates based on professional judgements. While this is a desirable reaction

to competition, the buyer must ensure "cost realism" where the depot will in fact recover its full costs.

A solicitation was issued on March 26, 1992, for the installation of 106 CWB's. Material, in the form of the kits being produced by Lockheed, was to be government furnished material (GFM) to the successful offeror. Three kits had been procured encompassing the CWB, the 958 frame and wing station 77, which would be required for each CWB installation.

The seller team at WR-ALC was comprised of knowledgeable production and financial personnel who, based on discussions and interviews, felt great pressure to win the competition for the depot. Despite extensive personal experience with the C141 program and the CWB prototype/trial installation experience, they started with a "clean sheet of paper". The standards established for the C141 were not used, since they were believed to be overstated. The data on the prototype and trial installations also was not used because it reflected training and other inefficiencies. Essentially, labor was estimated based on professional judgement. Since the C141 had approximately eight different Resource Control Centers (RCC's), it was desirable to establish a single, separate RCC for the CWB. This was accepted by DCAA. The seller estimated overhead and general and administrative (G&A) expenses for the new RCC, again based on professional judgement. While the review of past experience, the development of new improved processes and a questioning of methodologies are also desirable reactions to competition, such actions on the part of the seller place an additive burden on the buyer to ensure the results are reasonable or realistic, since the public depot will recover all costs.

In contrast, the private offerors had far less opportunity for creativity. They were submitting firm fixed prices for the basic requirement. Two private firms developed their offers using the data package and limited historical experience on related aircraft projects. The companies approved indirect rates were used. The third private competitor, Lockheed Aeronautical Systems, used prototype hours excluding non-recurring hours, balanced with a separate bottoms-up estimate using new production techniques. It also established a separate production base for the project.

THE SOURCE SELECTION

The solicitation for 106 CWB installations closed on May 11, 1992. Offers were received from three private firms: Lockheed, CTAS and AERO in addition to WR-ALC. The "buyer" evaluated offers and conducted discussions with the offerors during June and July 1992, issuing clarification and deficiency requests. In August 1992, the solicitation was amended to increase the projected quantity from 106 to 113. Revised proposals were received in September 1992, followed by additional discussions with the offerors. At this time, DCAA also reviewed the WR-ALC offer and provided the WR-ALC buyer with its report and comments. On October 31, 1992, a request for best and final offers (BAFO) was issued. WR-ALC's response to the BAFO was to substantially increase its price, reacting to the deficiencies and weaknesses addressed in

Figure 3

CENTER WING REPLACEMENT STAND ALONE (DROP-IN AIRCRAFT)				
TASK	FY 1993	FY 1994	FY 1995	FY 1996
INCOMING	134	134	134	134
PRESSURIZATION	21	21	21	21
STRIP	410	409	408	407
DEMATE	930	916	852	827
CWB R&I	5,823	5,976	5,665	5,526
MATE	2,675	2,633	2,504	2,455
BUILDUP	1,802	1,794	1,787	1,781
FUEL	16	16	16	16
FCF	334	334	334	334
TOTAL	12,145	12,233	11,721	11,501
CENTER WING REPLACED IN CONJUNCTION WITH PDM				
TASKS	FY 1993	FY 1994	FY 1995	FY 1996
INCOMING	0	0	0	0
PRESSURIZATION	21	21	21	21
STRIP	0	0	0	0
DEMATE	930	916	852	827
CWB R&I	5,823	5,976	5,665	5,526
MATE	2,675	2,633	2,504	2,455
BUILDUP	0	0	0	0
FUEL	0	0	0	0
FCF	0	0	0	0
TOTAL	9,449	9,546	9,042	8,829
CENTER WING REPLACED IN CONJUNCTION WITH PAINT				
TASKS	FY 1993	FY 1994	FY 1995	FY 1996
INCOMING	0	0	0	0
PRESSURIZATION	21	21	21	21
STRIP	344	343	342	341
DEMATE	930	916	852	827
CWB R&I	5,823	5,976	5,665	5,526
MATE	2,675	2,633	2,504	2,455
BUILDUP	1,633	1,625	1,618	1,612
FUEL	0	0	0	0
FCF	0	0	0	0
TOTAL	11,426	11,514	11,002	10,782
Source: WR-ALC Seller Handout				

Labor rates were estimated based on a plan to employ a substantial number of "temporary" workers. The use of the term "temporary" may be a misnomer, in that many of these workers are employed for 3 years or more. The approach reduces labor costs in that the fringe benefits, which amount to approximately 20.54% of an employees pay, are partially eliminated. Temporary workers on the C141 CWB comprise 54% of the workforce. Although this practice allows the depot to reduce labor costs and react to other hiring restrictions, it raises other serious issues with regard to the maintenance of skills and capabilities.

Production overhead was projected based on a separate Resource Control Center for the CWB with the base being direct labor hours. Production overhead rates for each of the contract years are provided in Figure 4, with a contrast provided for the non-competitive C141 PDM:

Figure 4

CWB Production Overhead Projections (per Direct Labor Hour)				
	FY 1993	FY 1994	FY 1995	FY 1996
C141 CWB	\$24.82	\$25.32	\$26.15	\$26.63
C141 PDM	\$21.44	\$34.32	\$37.59	—

Source: WR-ALC Production Directorate

Our review raises significant questions in allocating production overhead cost. Where O&M funded people who support the C141 CWB contract are not being allocated to the program, the production overhead is being understated. We could not discern differences that would justify the disparate projections, other than the nature of the program, in that: CWB was competitive, PDM was non-competitive and the allocation tables, which are intended to apportion indirect labor, are not current.

The G&A pool encompasses all the production directorates and is allocated based on direct labor hours. To the extent that direct labor hours are understated, overhead and G&A are understated also. Our review indicates the G&A pool does not include all expenses as defined in Cost Accounting Standards (CAS) 410. A strong argument can be made that WR-ALC should use a cost input base versus direct labor hours in allocating G&A expenses. The G&A base and rates used in the WR-ALC offer are provided in Figure 5:

Figure 5

CWB G&A Base and Rates				
	FY 1993	FY 1994	FY 1995	FY 1996
Hours	6,943,000	6,795,000	6,664,000	6,564,00
Rates	2.74 per hr.	2.89 per hr.	2.80 per hr.	2.70 per hr.

Source: WR-ALC Seller Data

With regard to each of these major element of costs, the WR-ALC seller took a "new look" at what it was doing and priced aggressively. The review of data led us to conclude that changes to substantive processes or procedures generally did not precipitate lower CWB estimates. Rather, the reductions reflected professional judgements and administrative changes, some of which are believed to be motivating or causing the mischarging of costs

during performance. It is significant indeed when the production overhead rate, for example, can differ by \$10.00 an hour between the PDM and CWB projects, with the higher rate reflecting historical data and the lower rate reflecting judgement in the face of competition. Our review indicates the actual rate is likely to be somewhere between the competitive and sole source rates. Whatever it turns out to be, the government will pay. While the sales price, which is a composite of direct labor, material and indirect costs and represents what customers pay per hour was being substantially reduced for the CWB in the face of competition, sales prices for the C141 PDM were increasing from \$63.93 in FY 1992 to \$81.22 in FY 1994, an increase of 27%. It certainly can be argued that lower prices on the competitive CWB and higher prices on the non-competitive PDM provides WR-ALC the opportunity in performance to achieve break-even, albeit with the PDM subsidizing the CWB program. The significant price increases on PDM reinforce the notion that competition on the CWB drove lower prices, not lower depot costs resulting from improved processes.

COMPLIANCE WITH LAW/REGULATION

A review of the source selection documentation and interviews with personnel associated with both the buyer and seller teams, leads to the observation that as a public entity, the standards applied objectively and subjectively to WR-ALC were different than would normally be applied to a private offeror under similar circumstances. These differences are exemplified by the following judgements and administrative actions, some of which are now causing costs to be mischarged:

1. WR-ALC did not have an approved estimating system. It was allowed to estimate the C141 CWB based on professional judgement, disregarding historical data. If WR-ALC could be held to a firm fixed price, the issue would be irrelevant. However, with WR-ALC as a public depot the government will assume its full costs. It should not be allowed to "buy in" any more than should a private firm. The substantial price increase between the initial offer and BAFO provided a strong indication that the WR-ALC estimating process was deficient.
2. Actions taken by WR-ALC to reduce costs, including the use of a high percentage of temporary workers, would normally cause a source selection authority to inquire and question the practice. The record does not indicate the issue was ever addressed in the source selection. Normally, this would be a significant risk if associated with a private firm under similar circumstances.
3. At the time of the competition a review of the WR-ALC proposal and the methods used to develop the data supports the observation that WR-ALC was not in compliance with the following FAR and CAS requirements:

- a. Timekeeping - The system by which supervisors record the hours for employees is generally not acceptable. As a result of audit criticisms, the system was changed whereby employees initial their time sheets every week. However, the system is not documented adequately and employees are not trained in its use. The employees continue to perceive this as an "attendance" system, reflecting how many hours they worked. There is little understanding that time must be charged to tasks on which they are working and that by their initialing the time sheets, they are validating the record. For example, in a floor check an employee did not recognize that 12 hours in the preceeding two weeks were charged to training. In the past, planners completed employee time sheets. Currently, first line supervisors prepare the time sheets with employees reviewing and initialing entries. Proper labor charging is basic to the accurate recording of costs. While changes at WR-ALC have made the timekeeping system more acceptable, implementing procedures and employee understanding remains inadequate, approximately 14 months after contract award.
- b. Internal Controls - The processes and procedures describing how transactions or exceptions are to be processed are poorly documented. Various transactions were found to be handled differently by several people at different times. There appeared no routine internal process to validate that appropriate actions were being taken. The absence of internal controls with a private contractor would be considered to increase performance risks. Production managers do not have visibility of what manual entries are made to systems which provide performance data.
- c. CAS Deficiencies The WR-ALC accounting system was established to meet the government's needs as a public depot. Though it is believed to essentially comply with the DOD Accounting Manual, which in some respects imitates the CAS, we find WR-ALC in non-compliance with the following CAS standards:
- (1) CAS 403 - Requires allocation of home office expenses to segments of a business. We did not find any cost from AFMC or other headquarters allocated to the C141-CWB in the proposal or in performance.
 - (2) CAS 402 - Requires consistency in allocating costs incurred for the same purpose. Direct labor costs are being reclassified as production overhead where direct labor hours are incurred but no earned hours are reported.
 - (3) CAS 407 - Requires standard costs and related variances to be accounted for at the level of the production unit. Since standard labor costs are not entered into the books of account, variances are

not accumulated in the accounting records nor are they allocated to the resource control centers.

- (4) CAS 410 - Requires a cost input base to be used to allocate G&A expenses to final cost objectives. WR-ALC is using a direct labor base.
- (5) CAS 418 - Requires proper allocation of direct and indirect costs. The production overhead pool does not include all allocable expenses for the C141 CWB. Direct labor costs are being charged to training, an overhead account.
- (6) CAS 420 - Requires B&P expenses to be accumulated and allocated to final cost objectives on the same allocation basis used for G&A. This did not occur.

The total impact of a CAS non-compliance or the continuing non-compliance cannot be quantified. Private contractors must have systems and processes that achieve compliance, with non-compliances subject to questions regarding a contractor's "responsibility" prior to award and equitable adjustments to price when non-compliances are discovered after award. This emphasizes the point that private offerors have been required to comply with regulatory requirements. Public entities have not had the same requirements imposed. These differences should not be dismissed as unimportant in public versus private competition. Though changes have been made at WR-ALC, which would support the observation that the depot is currently closer to CAS compliance than it was at the time of the solicitation, non-compliances continue to exist that would be unacceptable for a private firm.

COST COMPARABILITY

Adjustments to the WR-ALC offer were made in accordance with the cost comparability handbook. In the pre-award environment, the record indicates that significant efforts were made to identify and address appropriate adjustments. While it can be argued that these adjustments cause public depots to be evaluated as though they were private companies, based on our review we conclude that the comparability concept fails in that the public depot does not meet basic regulatory requirements involving estimating, timekeeping, accounting, and allocation of costs. Comparability adjustments cannot be made for these basic deficiencies. It was also apparent that in the C141 CWB competition, the comparability adjustments had no impact on the award decision. The adjustments were also not being implemented in all cases after award with appropriate charges to indirect cost accounts.

CONTRACT PERFORMANCE

As of May 31, 1994, 28 aircraft have been inducted for CWB replacement. The estimated program requirement is for 113 CWB aircraft. Of the 28 aircraft inducted, 3 have gone to final sales, 7 are completed and have been returned to the customers with the accounts open for trailing costs, 2 have the CWB completed but are in storage awaiting wing panels and the remaining 16 are in process. From the G072A report, costs incurred through April 1994 are \$11,882,949 and revenues are \$9,601,722. An additional \$224,000 has been recorded manually, which is a WR-ALC seller estimate of costs incurred between contract award and the first aircraft induction. This data was provided by CWB program personnel in Attachment 1. This computes to a loss of \$2,505,227 based on the G072A reports, with no consideration to any cost mischarging which is taking place. This data is inconsistent with that being reported formally to AFMC, in accordance with current directives, which includes only those aircraft that have gone to final sales. The formal DMC cost report (Figure 6) for the period through April 1994 reports revenues as \$1,644,000 and costs as \$2,499,000 for a loss of \$855,000. This fails to capture current information. Given the absence of documented procedures and internal controls, in reviewing performance data from month to month, it must be realized that the data does not reflect actual costs but allocated costs. In the opinion of the reviewers, WR-ALC is a sole source depot who's experience and systems are focused on schedule and quality. Production personnel are trying to manage costs without the necessary training or tools. The culture, discipline or procedures are not in place to properly manage the system costs. Many of the routine financial reports are adjusted manually. The production users generally did not know who made the adjustments and why. The program people impressed the reviewers as very capable, dedicated and conscientious - but with few tools to pro-actively manage and little understanding of how the pieces of a very complex accounting system come together. The result is that costs are not being properly charged. The more significant mischarging is as follows:

- a. Training - Figure (7) represents training hours by month and cumulative from April 1993, the month the first CWB aircraft was inducted under the contract. A total of 90,805 regular time training hours and 8,978 overtime training hours were charged to the C141 program. Of these totals, 76,714 regular time hours (84%) and 8,265 overtime hours (92%) were charged by the C141 CWB.

Figure 6

DMC Cost Report

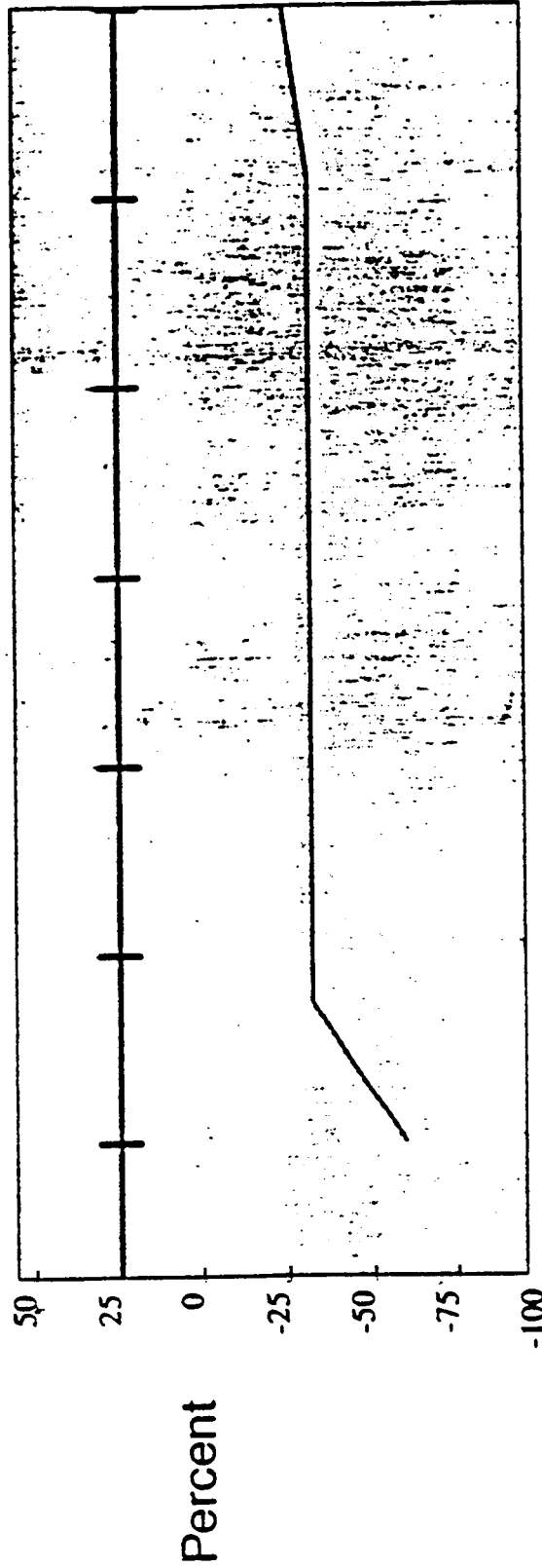
ALC: WR-ALC

Report as of Date: 31 May 94

Product Directorate: C-141 Management Directorate WAD Number F09603-93-C-0043

Workload Title: C-141Center Wing Box Replacement Period of Performance FY93/FY94

Unit Shop Flow Days: 15B/160



	A93	0	N	D	J94	F	M	A
NWV	0	615	1215	1664	2184	2631	4387	5904
CUM Sales	0	617	1217	1217	1217	1217	1217	1644
CUM Cost	224	1170	1913	1913	1913	1913	1913	2499
Profit/Loss	-224	-553	-696	-696	-696	-696	-696	-856
Cost VAR%		-89	-57	-57	-57	-57	-57	-52

Figure 7

TRAINING - HOURS						
	C141 (LJP)			C141 CWB (LJPE)		
	TOTALS	REG.	OT	TOTALS	REG.	OT
April 93	1,310	1,155	155	210	210	—
May	1,592	1,474	118	1,104	1,049	55
June	2,367	2,272	95	1,502	1,493	9
July	2,997	2,936	61	2,503	2,497	6
August	3,783	3,729	54	3,030	3,016	14
September	4,796	4,749	47	4,224	4,197	27
Subtotals FY 1993	16,845	16,315	530	12,573	12,462	111
October 1993	7,403	6,846	557	6,697	6,200	497
November	12,395	11,666	729	11,807	11,164	643
December	15,751	14,154	1,597	15,074	13,554	1,520
January	16,480	13,355	3,125	15,817	12,731	3,086
February	10,961	9,455	1,506	9,652	8,174	1,478
March	8,338	7,844	494	6,489	5,999	490
April	4,971	4,670	301	4,059	3,758	301
May	6,639	6,500	139	2,811	2,672	139
Subtotals FY 1994	82,938	74,490	8,448	72,406	64,252	8,154
TOTALS	99,783	90,805	8,978	84,979	76,714	8,265

Source: WR-ALC Production Directorate, Cost Data

Our review of records, confirmed by interviews, support the observation that substantial amounts of this training reflects hours worked on CWB production and charged as "on the job" training. Supervisors made these determinations without employees always recognizing that time was being charged to training vice CWB production. Although it was noted earlier that 54% of the CWB employees are considered temporary employees, a one-time check on June 10, 1994 determined that temporary employees also comprised 56% of PDM Branch "A" employees, 55% of PDM Branch "C" employees and 37% of PDM Branch "D" employees. Therefore, the imbalance in training charged by CWB employees cannot be rationalized by the comparative inexperience of the staffing. Rather, we believe that direct labor has been mischarged to training to understate direct labor hours. Overhead and G&A are also understated on the CWB, which are based on direct labor hours. If it were assumed that the C141 CWB should not have more hours charged to training than other C141 projects, 8,299 hours would be mischarged in FY 1993 and 61,871 hours mischarged in FY 1994 to date. Using the applicable direct labor, overhead and G&A rates for each year, the approximate mischarging (excluding training dollars) would be:

FY 1993	8,299 x \$17.28 (DL) + 8,299 x 24.82 (OH) + 8,299 x \$2.74 (G&A)	=	\$372,127
FY 1994	61,871 x \$18.04 (DL) + 61,871 x 25.32 (OH) + 61,871 x \$2.89(G&A)	=	\$2,861,534
			<u>\$3,233,661</u>

Clearly, an action charging direct labor to training would be cost mischarging under a contract with a private firm, subjecting the company to potentially severe financial penalties.

- b. Indirect costs are not being allocated properly. 21 support organizations were reviewed in the C141 management directorate. 15 were charging the C141 PDM-RCC but not the CWB-RCC. Our review indicates that 9 of these 15 organizations are providing direct benefit to the CWB including codes LJCR Human Resources/Administration, Code LJLE engineering branch and LJCF production/financial branch. The misallocation of indirect costs understates production overhead expenses on the C141 CWB (Figure 8).
- c. The depreciation expense included in the BAFO was \$704,355 annually. Depreciation expenses allocated to the C141 CWB for the first 7 months of FY 1994 were \$132,756, far less than proposed and considered appropriate. The entire process of determining and allocating depreciation expense appears to be flawed, greatly understating that which should be allocated to the contract. A private firm is required to follow GAAP and IRS guidelines.

With the limited management tools available, the CWB program personnel have addressed their responsibilities conscientiously. Five contract data requirements list (CDRL) reports were reviewed, with all reports being compliant with the requirement and made on time. The over and above requirements being negotiated on a case by case basis appear reasonable, with negotiated hours in line with other production processes. Program personnel are aggressively addressing issues, although authority appears to be diffused with numerous people outside the program making decisions that impact costs and schedule.

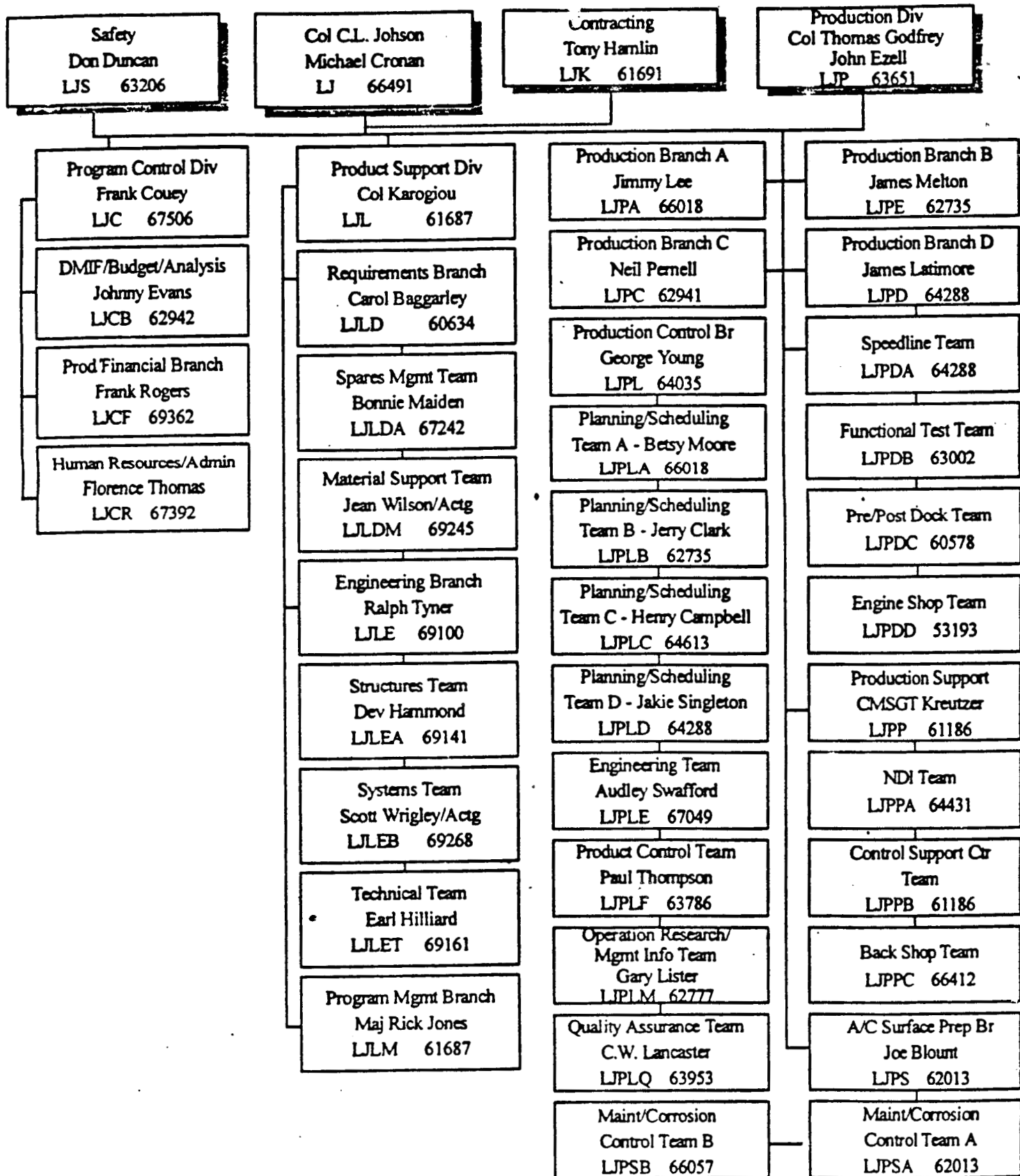
ACCOUNTING SYSTEMS

The Depot maintenance operations involved a network of 32 separate data systems as depicted by (Figure 9). While the network and system relationships are documented, the systems are very complex. The interfaces, exception processing requirements, procedures and potential program management use of the systems products do not appear to be well understood.

The system provides limited support to those responsible for managing program cost, schedule and performance. Based on interviews, program and production personnel have little knowledge of what files their inputs update or how exceptions are processed. Manual inputs are made without the users understanding how or why. Production directorate managers lack visibility on how costs in general and specifically those on G035A are accumulated or allocated

Figure 8

C-141 Management Directorate



March 1994

to the Resource Control Center. The systems do not accumulate actual direct labor hours or costs. The system does not have documented, effective controls. We do not believe the operations managers or supervisors have accurate cost data and thus are very limited in their abilities to identify and address performance problems.

BILLINGS

DOD policy requires industrial funds to establish sales prices that permit recovery of all expected costs. It also requires these sales prices to be established prior to the start of each fiscal year. Because sales prices are often based on assumptions that are made 3 years before the year in question, the relationship of these sales prices to the C141 CWB contract prices is considered important in evaluating the accountability of public depot performance. This relationship should be documented in the billing process.

We took a sample of 4 aircraft to track CWB program funding and billings. The results of our reviews are that no correlation could be established between contract prices and periodic revenue recognition, program funding and final billings. Clearly, an arms length buyer/seller or depot/customer relationship does not exist in the funding and billing processes. Each sample case was handled differently. Aircraft 670002, which has gone to final sales, had intra - DMIF billings periodically with a final debit adjustment to bring the billing in line with the contract price. The Government Furnished Material (GFM) with a FY 1994 DMIF price of \$1,142,518, was billed at \$49.00. This was recognized as a problem and meetings were held just prior to the review to address the problem. Aircraft #638076 had (1) billing dated April 30, 1994, for \$548,498. Material had been billed at \$1,142,518. For aircraft 660147 revenues are reported on G035A at \$342,187. There were no billings to date on this aircraft. The fourth aircraft 660158 had costs reported on G035A through April 1994 as \$13,404. The billing was \$96,912, as of April 30, 1994. Explanations of these cases were not provided.

With a private firm, if progress payments are authorized as they normally would be, monthly billings are submitted to the administrative contracting officer (ACO) who approves the invoice for payment. Where an overrun is being projected, as is the case on the C141 CWB, the ACO would normally apply a loss ratio to bring progress payments into line with physical progress. The billing process on the C141 CWB is not documented and each of the 4 aircraft sampled were processed differently, without adequate explanation. If the funds transferred to DMIF reflect the budget vice the contract price, clearly the price established by competition would be irrelevant. We could not determine exactly how the funding and billing process was being handled given the lack of documentation and the inability to have the specific examples explained. Where the process does not implement a documented arms length business relationship as intended by the competition, it deviates substantially from that required of private firms.

THE COSTS OF COMPETITION

The competition for the C141 CWB was conducted over approximately 9 months. Each of the 4 offerors maintained dedicated teams to develop proposals and respond to contracting officer inquiries. These costs are charged to Bid and Proposal (B&P) and were estimated by the offerors at approximately \$1 million. The WR-ALC buyer provided data estimating the competition cost at \$1.8 million. With the award of the CWB, a contract administration office was established. Its job is to negotiate the hours for over and above tasks, verify material deficiencies and perform other contract administration duties. The costs of this office and continued buyer support are estimated at \$1.5 million over the life of the contract. Using the most conservative of these estimates \$4.3 million was incurred to conduct the C141 CWB public vs private competition and to administer performance. This does not include estimates for any audits performed by DCAA or the Air Force Audit Agency, which may have otherwise not been performed.

CONCLUSIONS

The C141 CWB competition was not fair in that one competitor WR-ALC had overwhelming advantages, as follows:

- The ability to combine CWB efforts with other C141 projects, while charging common costs to the other projects.
- The opportunity to perform a prototype and three trial installations.
- The ability to ignore risk associated with proposing labor standards and costs that placed no reliance on existing standards or historical data.
- The ability to perform analogous to a cost type contract. While it is recognized that Air Force policy is to hold depots accountable for performing to the contract price, the systems do not track actual cost. The system documentation and internal controls are inadequate to validate cost allocations. The managers do not have the tools to manage costs.
- The ability to use existing accounting and reporting systems, which do not comply with statutory and regulatory requirements required of private firms.
- The ability to disregard business risks.

The potential benefits of competition in determining the most efficient producer in the marketplace at points in time are clear. In the C141 CWB competition, private companies

proposed firm fixed prices with systems established to comply with statutory and regulatory requirements. In contrast, WR-ALC's winning offer has in substance been converted to a cost type contract and its systems do not and cannot comply with the same statutory and regulatory requirements. The offers were not comparable. While the cost comparability handbook required the WR-ALC buyer to address some marketplace costs that a depot would not propose, it cannot address the basic problems associated with business risk, accounting and estimating systems and the proper charging of costs. Comparability adjustments also cannot address the fact that WR-ALC, as a public depot, has not previously been required to comply with Generally Accepted Accounting Principles (GAAP), Cost Accounting Standards (CAS), the Federal Acquisition Regulation (FAR), or compete in the marketplace.

Based on the data we reviewed and interviews, we believe adequate information was available up-front before the competition decision to conclude that WR-ALC, as the C141 Depot, could combine the CWB with other projects to provide substantial benefits to squadron customers both in saving aircraft downtime and costs. Similar potential did not exist in industry. The competition was an expensive surrogate to achieve real or imagined benefits that perhaps could have been addressed by training, improved systems, modern project management tools and increased management orientation to the cost of performance. Any claims that substantial savings have been achieved as a result of the competition are questionable.

Attachment 1			
C-141 CENTER WING REVENUES AND COSTS BY MONTH			
AS OF	TOTAL COST	REVENUE	PROFIT (LOSS)
05-31-93	\$238,329	\$168,038	(\$70,291)
Y-T-D	238,329	168,038	(70,291)
06-30-93	291,186	156,609	(133,577)
Y-T-D	529,515	324,647	(203,868)
07-31-93	425,847	298,584	(128,263)
Y-T-D	955,362	623,231	(332,131)
08-31-93	602,332	423,832	(178,500)
Y-T-D	1,557,694	1,047,063	(510,631)
09-30-93	959,735	504,823	(454,912)
Y-T-D	2,517,429	1,551,886	(965,546)
10-31-93	898,068	604,100	(293,965)
Y-T-D	3,415,498	2,155,986	(1,259,511)
11-30-93	989,731	959,190	(30,541)
Y-T-D	4,405,229	3,115,176	(1,290,053)
12-31-93	1,083,015	863,406	(226,729)
Y-T-D	5,488,244	3,978,582	(1,516,782)
01-31-94	1,443,253	1,283,720	(152,413)
Y-T-D	6,931,497	5,262,302	(1,669,195)
02-28-94	1,363,434	1,445,291	81,857
Y-T-D	8,294,931	6,707,593	(1,587,338)
03-31-94	1,773,232	1,764,718	(8,514)
Y-T-D	10,068,163	8,472,311	(1,595,852)
04-30-94	1,814,786	1,129,411	(685,375)
Y-T-D	11,882,949	9,601,722	(2,281,227)
MEMO FOR THE RECORD: These above numbers do not include the \$224,000 cost accumulated prior to the input of the first aircraft on 29 April 1993. Those totals with all costs included would be:			
Y-T-D	12,106,949	9,601,722	(2,505,227)

AS OF	CONTROL #	SERIAL NUMBER	TOTAL COST	REVENUE	PROFIT LOSS
04-30-94	00085H333	650,254	855,837	549,889	(305,948)
	00709B333	650,254	30,522	28,719	(1,803)
	000715B333	650,254	59,489	38,403	(21,086)
CWB	1ST AIRCRAFT TOTAL		945,848	617,011	(328,837)
	00085H341	650,260	684,476	527,391	(157,085)
	00714B341	650,260	2,148	20,629	18,481
	00715B341	650,260	56,645	51,681	(4,964)
CWB	2ND AIRCRAFT TOTAL		743,269	599,701	(143,568)
	00085H347	670,002	586,607	427,500	(159,107)
	00715B347	670,002	28,201	22,147	(6,054)
PDM/CWB	3RD AIRCRAFT TOTAL		614,806	449,647	(165,161)
	00085H001	660,195	664,970	441,880	(223,090)
	00709B001	660,195	27,824	27,021	(803)
	00715B001	660,195	75,520	62,944	(12,576)
PDM/CWB	4TH AIRCRAFT TOTAL		768,314	531,845	(236,369)
	00085H002	670,014	664,591	427,427	(237,164)
	00715B002	670,014	22,582	19,863	(2,719)
PDM/CWB	5TH AIRCRAFT TOTAL		687,173	487,290	(239,883)
	00085H003	660,157	529,875	461,649	(68,226)
	00709B003	660,157	29,157	27,870	(1,287)
	00715B003	660,157	17,384	10,448	(6,936)
PDM/CWB	6TH AIRCRAFT TOTAL		576,416	499,967	(76,449)
	00085H004	640,614	700,832	536,866	(163,966)
	00709B004	640,614	67,402	56,633	(10,769)

	00714B004	640,614	11,893	9,180	(2,713)
	00715B004	640,614	31,426	31,389	(37)
CWB/PAINT	7TH AIRCRAFT TOTAL		811,553	634,068	(177,485)
	00085H005	638,076	743,762	548,498	(195,264)
	00709B005	638,076	16,672	28,485	11,813
	00714B005	638,076	5,664	10,269	4,605
	00715B005	638,076	40,834	32,135	(8,699)
CWB	8TH AIRCRAFT TOTAL		806,932	619,387	(187,545)
	00085H006	650,231	615,945	445,873	(170,072)
	00715B006	650,231	5,957	6,818	861
PDM/CWB	9TH AIRCRAFT TOTAL		621.9	452,691	(169,211)
	00085H007	650,267	599,069	562,784	(36,285)
	00714B007	650,267	6,804	9,085	2,281
	00715B007	650,267	16,706	12,661	(4,045)
CWB/PAINT	10TH AIRCRAFT TOTAL		622,579	584,530	(38,049)
	00085H008	640,651	496,158	456,515	(39,643)
	00709B008	640,651	26,655	26,606	(49)
	00715B008	640,651	13,977	15,315	1,338
PDM/CWB	11TH AIRCRAFT TOTAL		536,790	498,436	(38,354)
	00085H009	660,136	585,078	539,095	(45,983)
	00711B009	660,136	19,850	21,471	1,621
	00714B009	660,136	8,199	9,103	904
	00715B009	660,136	17,436	15,544	(1,892)
CWB	12TH AIRCRAFT TOTAL		630,563	585,213	(45,350)
	00085H010	670,010	577,626	540,459	(37,167)
	00709B010	670,010	28,803	26,615	(2,188)

	00715B010	670,010	26,791	23,091	(3,700)
CWB	13TH AIRCRAFT TOTAL		633,228	590,165	(43,055)
	00085H011	667,957	471,659	467,985	(3,674)
	00711B011	667,957	21,856	20,972	(884)
	00713B011	667,957	5,473	13,250	7,777
	00714B011	667,957	8,650	8,772	122
	00715B011	667,957	11,144	12,639	1,495
CWB	14TH AIRCRAFT TOTAL		518,782	523,618	4,836
	00085H012	659,413	440,242	419,229	(21,013)
	00709B012	659,413	29,153	27,581	(1,572)
	00714B012	659,413	8,675	9,058	383
	00715B012	659,413	21,244	8,828	(12,416)
CWB	15TH AIRCRAFT TOTAL		499,314	464,696	(34,618)
	00085H013	640,615	422,819	338,920	(83,899)
	00709B013	640,615	35,718	26,647	(9,071)
	00715B013	640,615	16,406	13,252	(3,154)
PDM/CWB	16TH AIRCRAFT TOTAL		474,943	378,819	(96,124)
	00085H014	660,147	337,230	325,919	(11,311)
	00714B014	660,147	8,890	9,670	780
	00715B014	660,147	5,696	6,596	902
CWB	17TH AIRCRAFT TOTAL		351,816	342,187	(9,629)
	00085H015	650,266	226,899	178,386	(48,513)
	00709B015	650,266	60,411	44,406	(16,005)
	00714B015	650,266	5,309	6,703	1,394
	00715B015	650,266	1,750	1,347	(403)

CWB	18TH AIRCRAFT TOTAL		294,369	230,842	(63,527)
	00085H016	670,004	281,241	228,433	(52,808)
	00709B016	670,004	17,402	13,809	(3,593)
PDM/CWB	19TH AIRCRAFT TOTAL		298,643	242,242	(56,401)
	00085H017	650,218	162,741	122,031	(40,710)
	00709B017	650,218	6,055	4,788	(1,267)
	00714B017	650,218	8,467	8,894	427
	00715B017	650,218	0	49	49
CWB	20TH AIRCRAFT TOTAL		177,263	135,762	(41,501)
	00085H018	660,185	166,911	94,688	(72,223)
	00715B018	660,185	133	177	44
PDM/CWB	21ST AIRCRAFT TOTOAL		167,044	94,865	(72,179)
	00085H019	660,134	1,198	1,665	467
CWB	22ND AIRCRAFT TOTAL		1,198	1,665	467
	00085H020	650,271	71,218	55,440	(15,778)
	00714B020	650,271	10,239	10,020	(219)
CWB	23RD AIRCRAFT TOTAL		81,457	65,460	(15,997)
	00085H021	660,148	4,613	2,946	(1,667)
	00714B021	660,148	648	541	(107)
CWB	24TH AIRCRAFT TOTAL		5,261	3,487	(1,774)
	00085H022	660,158	762	509	(253)
	00714B022	660,158	12,722	7,619	(5,103)
CWB	25TH AIRCRAFT TOTAL		13,484	8,128	(5,356)

Nuclear Attack Submarine Ship Repair Availabilities Case Study

Norfolk Naval Shipyard

**Coopers
& Lybrand**

Coopers & Lybrand L.L.P.

a professional services firm

EXECUTIVE SUMMARY

NUCLEAR ATTACK SUBMARINE DOCKING SELECTED RESTRICTED AVAILABILITY COMPETITIONS CASE STUDY

Naval Sea Systems Command (NAVSEA) conducted a series of public/private competitions for ship repairs in the 1992 - 1993 time frame. Only one public shipyard was authorized by NAVSEA to participate in each competition to avoid pitting one against another. The shipyard selected for our review was Norfolk Naval Shipyard (NNSY). Work performance for the competitions was restricted to the Norfolk area due to home port considerations; therefore, Newport News Shipbuilding and Dry Dock Company was the sole private sector competitor.

NNSY participated in four competitions involving Docking Selected Restricted Availabilities (DSRA's) and lost each one to Newport News Shipbuilding. We selected the three attack submarine (SSN) DSRA competitions for our case study. The SSN DSRA's were scheduled to be completed in two months and covered a series of tasks identified in the RFP's statement of work by a Ship Work Line Item Number (SWLIN). The procuring activity, NAVSEA, requested a firm fixed price for DSRA Preparations (CLIN 0001) and for DSRA Execution (CLIN 0003). The fixed price covered all material with the exception of material furnished by the government as a part of a Ship Alteration (SHIPALT).

In addition to normal cost or pricing data required of public depots, NAVSEA required NNSY to compare its mandays and material cost proposals against the actuals reported for the same SWLIN's performed in a previously assigned SSN DSRA. NAVSEA also required NNSY to support its manyear rate proposal based on adjustments from the data used to negotiate its approved OSD budget manday rates.

In December 1992, NAVSEA issued solicitation number N00024-93-R-8506 to NNSY and to Newport News Shipbuilding for the USS ALBANY's DSRA. NNSY and Newport News submitted their initial proposals in January 1993. BAFO's were submitted in July 1993 and Newport News was the low offeror by 9% at a price of approximately \$8.2M.

NNSY became more aggressive in its next proposal for the USS NORFOLK DSRA competition. Newport News Shipbuilding won by less than three percent. NNSY then pulled out all the stops in its manday rate and manday estimates in the competition for the USS JACKSONVILLE and FINBACK DSRA's. NNSY was, in fact, the low offeror until NAVSEA applied a cost realism adjustment of \$3.4M to its BAFO. The adjustment added over \$90/day to the shipyard's proposed rate, driving the rate almost to its OSD budget level of over \$427/manday for repairs. Newport News displaced NNSY as the low offeror and won.

NAVSEA went to great lengths to level the playing field in structuring its DSRA competitions to counteract the fact that the public shipyard, NNSY, was not, in the long run, proposing costs on the same basis as the private yard. Unlike the private shipyard, NNSY would be reimbursed for actual costs incurred in excess of the contracts' firm fixed prices during execution. As a result, NNSY was required to present cost and performance details in its proposals designed to allow the procuring contracting officer (PCO) to perform cost realism analyses. The private yard was not.

NNSY gave credence to NAVSEA's cost realism requirements by proposing downward adjustments to its manday rates which appeared to go well beyond the shipyard's ability to achieve. From our vantage point, the manday rate at \$371.20 was understated by at least \$26/day for the ALBANY proposal. The rates proposed for the next two competitions at approximately \$330 and \$335/manday respectively were not realistic. From the shipyard's own perspective, it pushed the estimating envelope as hard as it could with each successive proposal in an attempt to win the contract from Newport News Shipbuilding and Dry Dock Company. In reaction to what it considered unachievable pricing, NAVSEA applied a cost realism adjustment to the JACKSONVILLE/FINBACK proposal and displaced NNSY as the apparent low offeror. In our opinion, there was room to apply a cost realism adjustment on the ALBANY and NORFOLK proposals as well, but there was no need to since Newport News Shipbuilding was the low offeror for both competitions.

NNSY was competing against a private yard with a contract manday rate of about \$370/day. In comparison, NNSY's budget rate for non-nuclear repairs was approximately \$427/day before recoupment.¹ The shipyard was not an experienced competitor against the private sector and has a cost accounting system designed to account for and recover costs under the Defense Business Operating Fund (DBOF). It was much easier for Newport News Shipbuilding to compete in this environment than NNSY.

Competition in this environment was made more difficult by the fact that NNSY does not control its own destiny in terms of missions assigned, facilities retained or added for mobilization purposes, or the speed by which costs can be saved from personnel actions such as reductions in force. Given the conduct of the SSN DSRA's, we could not determine if legitimate manday rate differences were properly presented or considered.

Lastly, profits and losses in the private sector are normally taken in the year in which they occur. This is not the case with public yards operating under DBOF which adjust manyear rates up or down to account for losses or gains incurred in prior years and, more recently, from other public shipyards. NNSY, for example, advised that its FY1995 stabilized rates include a recoupment factor of some \$175/manday, most of which is to cover losses from other shipyards. Resuming competition with a manday rate of over \$600/day in the case of NNSY will serve no purpose without NNSY being allowed to propose manday rates and prices that reflect its planned performance, excluding recoupment costs applied to its rates by higher authority.

¹ Recoupment refers to the Navy Comptroller's adjustment applied to the shipyard's manday rate to recover losses from the previous year.

INTRODUCTION

Naval Sea Systems Command conducted a series of public/private competitions for ship repairs in the 1992 - 1993 time frame under the purview of the Cost Comparability Handbook. Only one public shipyard was authorized by NAVSEA to participate in each competition to avoid pitting one against another. The shipyard selected for our review was Norfolk Naval Shipyard (NNSY). Work performance for the competitions was restricted to the Norfolk area due to home port considerations; therefore, Newport News Shipbuilding and Dry Dock Company was the sole private sector competitor.

NAVSEA was the procuring activity for a series of four public/private competitions involving five ships in which Norfolk Naval Shipyard (NNSY) was a participant. Each of the competitions involved a Docking Selected Restricted Availability (DSRA). None were won by NNSY.

BOAT/SHIP

SUCCESSFUL OFFEROR

USS ALBANY (SSN-753)	Newport News Shipbuilding
USS NORFOLK (SSN-714)	Newport News Shipbuilding
USS FINBACK (SSN-670)*	Newport News Shipbuilding
USS JACKSONVILLE (SSN-699)*	Newport News Shipbuilding
USS HANCOCK (DD-981)	Newport News Shipbuilding

* Note: The DSRA work for USS FINBACK and USS JACKSONVILLE were competed as one package by NAVSEA.

Four more public/private competitions involving NNSY were canceled as a result of DoD's decision to discontinue public versus private competition. Subsequently, two of the four canceled SSN DSRA's were assigned to NNSY and two were assigned to Newport News Shipbuilding and Dry Dock Company.

SCOPE

The three SSN DSRA competitions are the subject of this case study. The details of the competition for USS ALBANY (SSN-753) under RFP N00024-93-R-8506 were used as the basis for reviewing NNSY's estimating process, including the yard's rate structures and labor hour allocations. The remaining competitions demonstrate the sequential, albeit unsuccessful, steps taken by NNSY to outbid Newport News Shipbuilding.

NNSY's competitive data were obtained for each of the SSN competitions from initial offers through the best and final offers (BAFO's). The details of the USS HANCOCK competition were not reviewed. Reviews were conducted of NNSY's overhead and G&A rate

structures and allocations and the shipyard's labor hour estimating and recording practices. Shop visits and interviews with key proposal, financial and production personnel were also conducted. The yard's methods for projecting and negotiating stabilized rates under the Defense Business Operating Fund (DBOF) were a key to its DSRA proposals. Therefore, stabilized rates were examined in depth, particularly the mix of NNSY's shop work and the projected workload changes used to develop the fully burdened manday rates proposed to NAVSEA.

Newport News Shipbuilding contract award information for the SSN DSRA's was provided by the staff of Supervisor of Shipbuilding, (SUPSHIP) Newport News. In-depth discussions of the private yard's DSRA performance were held with the Administrative Project Officer and repair office personnel. Source selection documentation at NAVSEA was not reviewed nor were the results of DCAA reviews.

STRUCTURE OF THE SOLICITATIONS

The SSN DSRA's were scheduled to be performed in two months and covered a series of specified tasks to be performed which were identified in the RFP's statement of work by a Ship Work Line Item Number (SWLIN). NAVSEA requested a firm fixed price for DSRA preparations (CLIN 0001) and for DSRA execution (CLIN 0003). The fixed price covered all material with the exception of material to be provided as government furnished as a part of a ship alteration (SHIPALT) package. (Documentation in CLIN 0002 was not to be separately priced.)

The number of mandays, a fully burdened labor rate/manday and the cost of material were to be identified and evaluated for each SWLIN contained in the work package as well as the breakdown and rationale supporting overhead and G&A rates. In addition, NAVSEA required NNSY to justify its prices by comparing the mandays and material costs proposed against the actuals reported for the same SWLIN's performed in a previously assigned SSN DSRA.

NAVSEA also required NNSY to support its overhead and G&A rate positions based on adjustments taken from the costs and mandays NNSY used to approve its OSD stabilized budget rates. For example, if the OSD budget for FY94 was based on an annual workload at NNSY of 200,000 mandays and the shipyard's ALBANY proposal was based on an annual workload of 250,000 mandays, then NNSY would have to present and defend its rationale for the additional 50,000 mandays in its proposal. The same justification would have to be presented if business base projections used for G&A and overhead rate calculations were different in the proposal from the OSD budget data. (NAVSEA elected to apply its own assessment of Cost Comparability Handbook (CCH) adjustments for the ALBANY competition rather than allow NNSY to propose adjustments as indicated in the handbook. The cost comparability factors selected by NAVSEA were 1.0564 for NNSY and 1.0134 for Newport News Shipbuilding. We did not examine the supportability of this assessment and/or its compliance with CCH since the adjustment did not play a role in deciding the winner of the competition.)

USS ALBANY (SSN-753) DSRA COMPETITION

In December 1992, NAVSEA issued solicitation number N00024-93-R-8506 to NNSY and to Newport News Shipbuilding for ALBANY's DSRA work. NNSY submitted its proposal in accordance with the RFP by 29 January 1993 as did Newport News. During the evaluation, NAVSEA took exception to some of the OSD budget costs which NNSY eliminated from its proposal and to the workload forecast by NNSY. As a result, NNSY revised its cost proposal (at NAVSEA's direction from NNSY's perspective) in its BAFO submitted on 14 July 1993. Restructuring was minimal (an upward adjustment of less than one percent) and had little affect on the award. As shown in Figure 1, Newport News was the low offeror by 9%.

Figure 1

USS ALBANY BAFO	NEWPORT NEWS	NNSY	NNSY DELTA
Mandays Bid	20,194	21,489	+6.4%
Manday Rate	\$369.93	\$371.20	+0.3%
Total Cost	\$8,196,114	\$8,936,728	+9.0%
Material Prices ¹	\$725,763	\$959,937	+32.3%
¹ Newport News material prices do not include profits in this chart. Total Cost differences are thus somewhat overstated.			

In execution, Newport News completed the ALBANY DSRA at a cost of roughly \$12.0 million with 11 change orders still to be definitized as of September 1994. SUPSHIP personnel attribute the growth in cost exclusively to increases in scope for three new SHIPALTS and considered cost controls on the original workload scope to be excellent. Contract prices were believed by SUPSHIP to represent a substantial savings over assigned non-competitive DSRA's.

MATERIAL COST ESTIMATES

Material differences in the ALBANY proposal, while substantial, represented only \$234K out of a total difference of approximately \$741K. Material differences in the proposal for the DSRA's for USS JACKSONVILLE and USS FINBACK also did not make a difference in which yard won the competition. This was not the case in the NORFOLK competition where the difference in the material cost proposals was more than enough to swing the award to Newport News.

Figure 2

MATERIAL BAFO's	NEWPORT NEWS	NNSY	NNSY DELTA
ALBANY	\$725,763	\$959,937	+32.2%
NORFOLK	\$837,000	\$1,155,017	+38.0%
JAX/FINBACK	<u>\$1,383,719</u>	<u>\$1,532,571</u>	<u>+10.8%</u>
TOTALS	\$2,946,482	\$3,647,525	+23.8%

As noted in Figure 2 above, Newport News consistently underbid NNSY on material costs.

MANDAY RATE ESTIMATING FOR USS ALBANY

The difference in the NNSY and Newport News proposals for the ALBANY DSRA was not quite as close as the BAFO margin shown in Figure 1. In our estimation, NNSY's proposed manday rate of \$371.20 was understated by at least \$26/day because of costs being exempted from the proposal which were not consistent with the Cost Comparability Handbook (CCH) and because of the win rate used by the shipyard for future competitions. NNSY exempted the following costs from its proposal in accordance with the cost exemptions listed in a study done by Long Beach Naval Shipyard study dated 22 May 1990:

Traumatic Leave and Injury	\$4.4 million
Payments to NAVFAC for supervision & overhead	2.0
Crane Inspection	2.2
Other	2.0
Total Exemptions	\$10.6 million

These cost exemptions are not excludable under the CCH and are comparable to identical or like costs that would be incurred by a private competitor. Accordingly, the ALBANY manday rate was understated for these factors by about \$8/day and proposed costs by some \$172,000.

In addition, NNSY proposed lower overhead and G&A costs per manday than those contained in the OSD rate, overstating its business base by predicting it would win all of the competitions in which it would be participating. (By using a 100% win rate, the shipyard increased the number of mandays to be worked by some 20% over the mandays used to establish the OSD rate.) If a more modest win assumption had been used, 50% for example, then the ALBANY manday rate would have increased by about \$18/day and proposed costs would have increased by approximately \$389,000. Indirect-to-direct expense ratios for the additional mandays won in competition were also estimated at a lower ratio than the indirect to direct

expense ratio reflected in the OSD budget submission. We did not estimate the cost impact of the lower ratio.

Based on our assessment, the addition of \$26/day to NNSY's proposed manday rate would bring the rate to within about \$30/day or 7% of its OSD budget repair manday rate of \$427.36. Most of the \$30/day difference is because the mix of cost centers performing the ALBANY work was less expensive than the mix contained in the OSD budget rate. In addition, the proposed rate reflected the ability of the supervisors to lower labor costs through such devices as work assignments by wage grade and overtime controls. We reviewed the methods used to estimate mandays by shop by SWLIN and took no exceptions to this technique. We also took no exceptions to the rate adjustments for improved supervisory controls.

MANDAY ESTIMATING FOR USS ALBANY

The estimate of 21,489 mandays proposed for the ALBANY DSRA appeared to be reasonable, especially when compared to the standard of 20,000 mandays used by the customer, Commander, Submarine Forces, U.S. Atlantic Fleet, to budget for SSN DSRA's. We also noted that attempting to compare DSRA mandays among boats or by SWLIN, was not feasible without expert insight into the details of the work actually performed. For example, we examined 16 SWLIN's cited in the ALBANY statement of work which had been performed on the 1991 BATON ROUGE DSRA and 1989 RICKOVER DSRA.² Mandays for only two of the 16 SWLIN's were within 10% of each other for the two completed boats; seven of the 16 completed SWLIN's differed by more than 20%.

We also tried to compare mandays incurred on prior DSRA's with those proposed for ALBANY with similar results. Mandays incurred varied from 12,905 for a two month availability for USS FLYING FISH to 27,685 mandays incurred for a three month availability for USS RICKOVER. The average mandays for the nine DSRA's were 18,884. Five incurred less mandays than the 20,000 manday customer's budget standard. Four were higher.

USS NORFOLK, JACKSONVILLE AND FINBACK PROPOSALS

NNSY's estimating for the ALBANY proposal was relatively conservative. The shipyard was much more aggressive in estimating its manday rates in the next competition but still lost the USS NORFOLK (SSN-714) DSRA work by less than three percent as shown in Figure 3:

² A docking SRA occurs once every four years, thus the reason for having to use 1990/91 data to compare SSN availabilities.

Figure 3

USS NORFOLK BAFO	NEWPORT NEWS	NNSY	NNSY DELTA
Mandays Bid	21,417	23,695	+9.6%
Manday Rate	\$369.16	\$329.68	-12.0%
Total Cost	\$8,743,275	\$8,967,048	+2.5%
Material Costs	\$837,000	\$1,155,017	+38.0%

NNSY then became very aggressive in structuring its manday rates and mandays for the competition covering the DSRA's for USS JACKSONVILLE (SSN-699) and USS FINBACK (SSN-670). The shipyard was, in fact, the low offeror with a price of \$13.9 million until NAVSEA made a cost realism adjustment of almost \$3.4 million to the shipyard's offer on the basis of a DCAA desk audit of the shipyard's costs. To the best of our knowledge, NNSY was not given the opportunity to discuss and/or negotiate this adjustment. The manday rate adjustment displaced NNSY as the low offeror and Newport News won the competition by about 4% as shown in Figure 4:

Figure 4

USS JACKSONVILLE/ USS FINBACK BAFO	NEWPORT NEWS	NNSY	NNSY DELTA
Mandays Bid	41,146	37,036	-10.0%
Manday Rate	\$369.59	\$334.52	-9.5%
Total Cost	\$16,592,845	\$13,922,226	-16.1%
NAVSEA Adjustments	0	\$3,356,868	
Evaluated BAFO	\$16,592,845	\$17,279,094	+4.1%
Material Costs	\$1,383,719	\$1,532,571	+10.8%

The NAVSEA adjustment added \$90.64 to NNSY's manday rate, raising it to a rate almost the equal of NNSY's FY94 OSD budget manday rate for repair work of \$427.36/day. The FY94 repair rate with recoupment was \$449.76/day. Mandays apparently were not questioned. NNSY did not protest the adjustment to the best of our knowledge.

DCAA INVOLVEMENT

DCAA's involvement in the NNSY public vs. private competitions was considerably less than that with Army and Air Force competitions. NAVSEA did not request that DCAA perform on-site reviews of any of the shipyard's price proposals. Instead, DCAA's Capital Branch, performed cost realism reviews of selected NNSY submitted cost estimates. This procedure entailed desk reviews of NNSY proposal packages and the use of cost history available within NAVSEA files to evaluate proposed costs. These cost realism reviews were not performed on all of NNSY's price proposals.

TIME RECORD ACCOUNTING

An informal check concerning the accuracy of the time record accounting system was performed. Employees no longer fill out timecards; this function is performed by the foremen using the automated administrative tool called SUPDESK. Shipyard personnel state that SUPDESK and other initiatives have increased the accuracy of time accounting significantly over the past several years. Continued improvements were considered necessary and were expected.

The shipyard is operating under the Cost/Schedule Control System (CSCSS), the formal project cost accounting system that all the shipyards were directed to implement by NAVSEA. The genesis is Department of Defense Instruction 5000.2 which was initially developed by DoD for management of major defense programs. The shipyards are monitored by NAVSEA for compliance to this system. Since the shipyard did not win any of these competitions, a review of performance reporting could not be conducted.

NNSY is also changing the philosophy it uses to manage ship overhaul work. This change has been evolving over the past several years from a trades and shop managed concept to a new management approach called BAIM (Baseline Automated Industrial Management) which empowers an overhaul superintendent with total management control over budgets, labor, and schedule. BAIM had no impact on the proposals discussed in this study.

RECOUPMENT RATES

NNSY personnel were not optimistic regarding their ability to compete successfully for business. Losses incurred by other yards were claimed to have added about \$143/manday to NNSY's FY1995 stabilized rate. Its overall rate with that adjustment exceeds \$600/manday, a rate at which NNSY believes it cannot compete for scarce customer dollars, particularly since customer budgets have not been adjusted to make this rate affordable.

CONCLUSIONS

NAVSEA went to great lengths to level the playing field in structuring its DSRA competitions to counteract the fact that the public shipyard, NNSY, was not, in the long run, proposing costs on the same basis as the private yard. Unlike the private shipyard, NNSY would be reimbursed for actual costs incurred in excess of the contracts' firm fixed prices during execution. As a result, NNSY was required to present cost and performance details in its proposals designed to allow the contracting officer to perform cost realism analyses. The private yard's offer was a firm fixed price. Cost realism was not performed.

NNSY reacted to NAVSEA's cost realism requirements by proposing downward adjustments to its manday rates which appeared to go well beyond the shipyard's ability to achieve. We believe the manday rate at \$371.20 was understated by at least \$26/day for the ALBANY proposal. The rates proposed for the next two competitions at approximately \$330 and \$335/manday respectively were not realistic.

From the shipyard's own perspective, it pushed the estimating envelope as hard as it could with each successive proposal in an attempt to wrest the contract from Newport News Shipbuilding and Dry Dock Company. In reaction, NAVSEA eventually applied a cost realism adjustment to the JACKSONVILLE/FINBACK proposal which displaced NNSY as the apparent low offeror. In our opinion, there was room to apply a cost realism adjustment on the ALBANY and NORFOLK proposals as well, but this was unnecessary since Newport News Shipbuilding was the low offeror for both competitions.

NNSY is competing against a private yard with a contract manday rate of about \$370/day. In comparison, NNSY's OSD budget rate for non-nuclear repairs was approximately \$427/day before recoupment. The shipyard was not an experienced competitor against the private sector and has a cost accounting system designed to account for and recover costs under the Defense Business Operating Fund (DBOF). It was much easier for Newport News Shipbuilding to compete in this environment than NNSY.

Competition in this environment was made more difficult by the fact that NNSY does not control its own destiny in terms of missions assigned, facilities retained or added for mobilization purposes, or the speed by which costs can be avoided from personnel actions such as reductions in force.

Lastly, profits and losses in the private sector are normally taken in the year in which they occur. This is not the case with public yards operating under DBOF which adjust many year rates up or down to account for losses or gains incurred in prior years and, more recently, from other public shipyards. NNSY, for example, advised its FY1995 stabilized rates include a recoupment factor of some \$175/manday, most of which is to cover losses from other shipyards. Resuming competition with a manday rate of over \$600/day in the case of NNSY will serve no purpose without consideration being given to not requiring depots to include in its proposed prices recoupment of prior year losses.

Document Separator

POINT PAPER
COOPERS AND LYBRAND

SUBJECT: Coopers & Lybrand, Depot Maintenance Public Versus
Private Competition Report, March 1995

1. PURPOSE: To provide information on why Tobyhanna Army Depot is
rated the most cost efficient depot within the Army and The DOD.

2. FACTS:

BACKGROUND:

- o Coopers & Lybrand conducted an extensive review of policies, procedures, and practices employed by 6 DOD Depots, two from each service, engaged in public vs. private competition to determine if the playing field was level regarding cost estimating and financial accounting systems integrity.
- o The 6 maintenance depots reviewed were: Tobyhanna Army Depot, Anniston Army Depot, Ogden ALC, Warner Robins ALC, Norfolk Naval Shipyard, and the Naval Aviation Depot Jacksonville.

COOPERS & LYBRAND'S OBSERVATIONS WERE:

- pg 10
- o Tobyhanna's approach to competition was thorough, professional and well documented.
 - pg 11
 - o Tobyhanna's proposal was based on well documented cost and pricing data. Labor hours were supported by detail operations, and estimating practices and techniques were current and compared favorably with private industry. Further, Tobyhanna's estimating procedures were the best of the public depot's reviewed.
 - pg 12
 - o The timeliness and high quality of Tobyhanna's performance of the RT-524 contract is impressive. The depot's management of materiel ordering, use and costs throughout the contract was excellent.

COOPERS & LYBRAND'S CONCLUSIONS WERE:

- pg 7
- o There were significant differences observed between depots in estimating and accounting for costs, the Tobyhanna Army Depot was the "only" depot that approached regulatory compliance and sound business practices that we considered comparable to a private firm.
 - pg 10
 - o In performance, Tobyhanna Army Depot personnel demonstrated an excellent understanding of cost accounting.

Other corroborating cost data, reflecting actual financial performance for the two most recently completed fiscal years, is provided below:

BID RATE COMPARISON

	FY-93	FY-94	FY-95
TOBYHANNA	\$51.25	\$63.63	\$80.71
OGDEN ALC	\$70.52	\$77.34	\$82.81

COST COMPARISON

	FY-93	FY-94
TOBYHANNA	\$59.33	\$63.37
OGDEN ALC	\$64.71	\$76.88

Based upon actual performance, Tobyhanna would have executed 1.5M direct labor hours of effort at a \$8,070,000 savings vs. the OGDEN ALC in FY93. In FY94, the delta would have risen to \$20,265,000, for a combined two year savings of \$28,335,000. It is important to note that while the rates for OGDEN ALC continue to rise, the approved FY96 rate for Tobyhanna is \$59.95, a 26% decrease from the previous year, and a rate that is more indicative of the value contained in the Tobyhanna rate structure

CONCLUSION

Analysis of the data yields the conservative conclusion that a recurring annual savings of \$20M, in favor of Tobyhanna Army Depot, is likely, based upon a 1.5M direct labor hour projection. The current cost deltas between the various elements of the two installations are those which are most likely to increase. As an example, a 3% inflationary labor increase to Tobyhanna's labor rate would result in \$.65 being added to the following years rate. In comparison, the same increase to the OGDEN would add \$.84 to their rate. Therefore, it can be said that the recurring savings amount would increase in each successive year.

Document Separator

FACILITY CAPACITY

1. ~~Access to the facility is determined by the Army's method of determining depot capacity for a given commodity. Because capacity is commodity-driven, the facility is designed to handle a specific commodity.~~

2. Function, not square footage, is the determinative factor when constructing or occupying a building. The building is constructed to different criteria depending upon its function, i.e., a "heavy industrial" (mechanical/heavy iron/vehicle/aircraft/ship) or an "electronic" function.

3. A "heavy industrial" building for example, will require high bay areas, heavy duty cranes, large equipment areas, ventilation and exhaust systems, and large cargo doors. Letterkenny's facilities are predominately "heavy industrial" buildings, with the exception of one missile facility.

4. An "electronic" building, on the other hand, will require enclosures with temperature and humidity controls, physically secure (RFI/EMI) areas, clean rooms, static dissipative floors, greater power requirements (400V, 28VDC, air conditioning, etc.), an abundance of communications services (telephones, computers, secure lines, fax machines, fiber optics, etc.), and the environment must be "clean" or free of dust and other pollutants. This type of building is necessary for the sensitive communications-electronics equipment which is workloaded at Tobyhanna.

5. "Heavy industrial" and "electronic" buildings are not interchangeable. "Heavy industrial" buildings, like those at Letterkenny, cannot be easily or cost-effectively converted to "electronic" facilities like those at Tobyhanna.

6. "Heavy industrial" type structures will, because of intended use, have more square feet dedicated to a typical work position than an "electronic" type of facility. This can create the illusion of additional capacity that cannot be easily converted to a more sophisticated type of workload.

4 May 95 REGIONAL HEARINGS
CONE SHUSTER BRIEFING

DEPOT MAINTENANCE CAPACITY

Work Positions	X	Availability Factor	X	Annual Productive Manhour
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Causes entire analysis to be weapon system unique

4 May Regional Hearings
Cora Shuster Briefing

DEPOT MAINTENANCE CAPACITY

DoD Directed Computation - DoD 4151.18-H, "Depot Maintenance Capacity and Utilization Measurement Handbook", August 1994

Capacity Index Formula

Work positions X availability factor X annual productive hours

Work Position - "The designated space of equipment/process usage that can be occupied consistently by one direct production worker to accomplish the assigned task on a full time basis."

"A work position may include more than one location if the worker moves to other locations to accomplish the task."

BRAC 95 MILITARY ANALYSIS DRIVEN BY... CAPACITY COMPUTATION

The analysis counts
work positions not
floor space!

Depot A



The analysis says Depot B
has twice the capacity
of Depot A...

Depot B



-  Work Positions
-  Floor Space

What if Depot A does
Paladin
and Depot B does
radios?

PROFITABILITY

THE ATTACHED " VALIDATED NET OPERATING RESULTS" CHART DISPLAYS THE PUBLISHED/AUDITABLE NET OPERATING RESULTS (NOR), A MEASURE OF PROFITABILITY, FOR THE DESCOM DEPOTS. THESE RESULTS SHOW THAT TOBYHANNA HAS BEEN ABLE TO PERFORM ITS MAINTENANCE MISSION WITHIN ITS RATE STRUCTURE WHILE LETTERKENNY HAS EXPERIENCED SOME MAJOR NOR LOSSES.

THIS IS A REFLECTION OF TOBYHANNA'S ABILITY TO MANAGE ITS BUSINESS AND PROVIDE ITS CUSTOMERS THE BEST VALUE. IF INSTALLATION REVENUE RATES ARE TO BE USED TO COMPARE TOAD AND LEAD, THE CHART DATA IS IMPORTANT FOR TWO SIGNIFICANT REASONS. FIRST, THE CREDIBILITY OF RATES PROVIDED BY DEPOTS SHOULD BE HIGHER AT THOSE WITH LONG TERM HISTORIES OF PROFITABILITY (NOR GAINS). SECONDLY, DEPOTS WITH CONSISTENTLY LARGE LOSSES NEED TO RECOUP THESE LOSSES THROUGH RECURRING RATE INCREASES (SURCHARGES), WHICH INCREASE COST TO THE CUSTOMER.

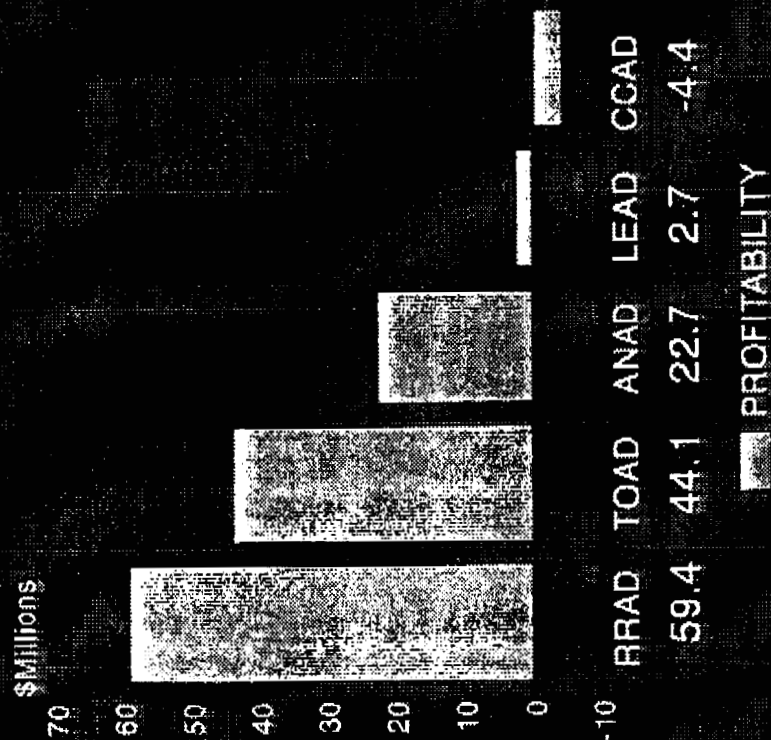
IT SHOULD ALSO BE NOTED THAT THE RATES FOR FY95 INCLUDE SURCHARGES DESIGNED TO GENERATE LARGE PROFITS AT EACH OF THE DESCOM DEPOTS TO OFFSET DESCOM LOSSES AND REIMBURSE THE JOINT LOGISTICS SERVICING CENTER (JLSC) FOR SUPPORT. AT THE CLOSE OF FY95, EACH DESCOM DEPOT WILL RECEIVE A "BILL" FOR THESE COSTS, WHICH THE DEPOTS SHOULD REGARD AS "ACCOUNTS PAYABLE". FOR LETTERKENNY, THE BILL IS \$28M. THROUGH MARCH OF FY95, LETTERKENNY HAS A \$5.2M NOR LOSS, AGAINST A YEAR-END PLAN OF \$1.0M GAIN. ASSUMING THAT THEY CAN IMPROVE TO THEIR PLAN BY FY END, THEY WILL STILL SUFFER A \$27M ACCUMULATED OPERATING RESULT LOSS (\$1.0M GAIN -\$28.0M BILL). THIS LOSS WOULD HAVE TO BE RECOUPED IN THEIR FY97 RATES. AT THEIR CURRENT WORKLOAD LEVELS, THIS WOULD RESULT IN A \$27 SURCHARGE BEING ADDED TO THEIR FY97 RATE (\$27M/1M "97" HOURS WORKED IN "97"). SUCH AN INCREASE WOULD WIDEN THE RATE GAP BETWEEN TOAD AND LEAD TO MORE THAN \$50 AN HOUR.

TOBYHANNA, ON THE OTHER HAND, HAS CONSISTENTLY MANAGED EXPENSES AND WORKLOAD TO PRODUCE OPERATING GAINS (POSITIVE NORs), WHICH ARE RETURNED TO OUR CUSTOMERS IN THE FORM OF A CREDIT. THROUGH APRIL FY95, THE TOBYHANNA MAINTENANCE MISSION HAS A GAIN, AND IS WELL ON ITS WAY TO EXECUTING THE PLANNED YEAR-END GAIN OF \$34.0M. THIS WILL MINIMIZE OR ELIMINATE THE NEED FOR ANY SURCHARGES ON FUTURE WORKLOAD.

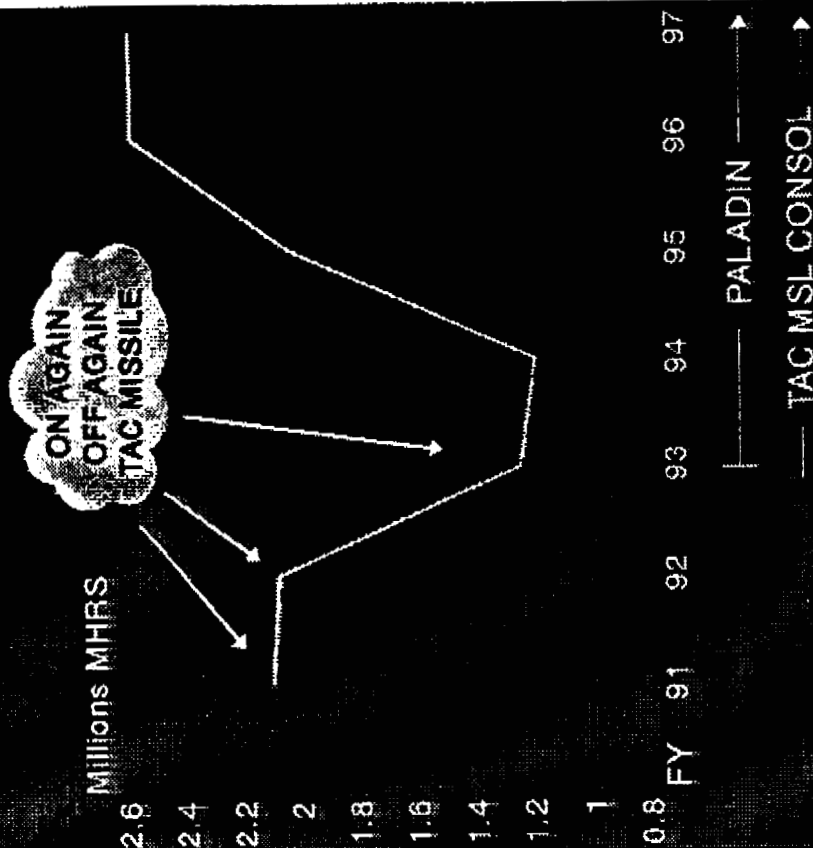
*Conc SHUSTER Briefing
4 May Regional Hearings*

PROFITABILITY

Cumulative FY90 - FY94



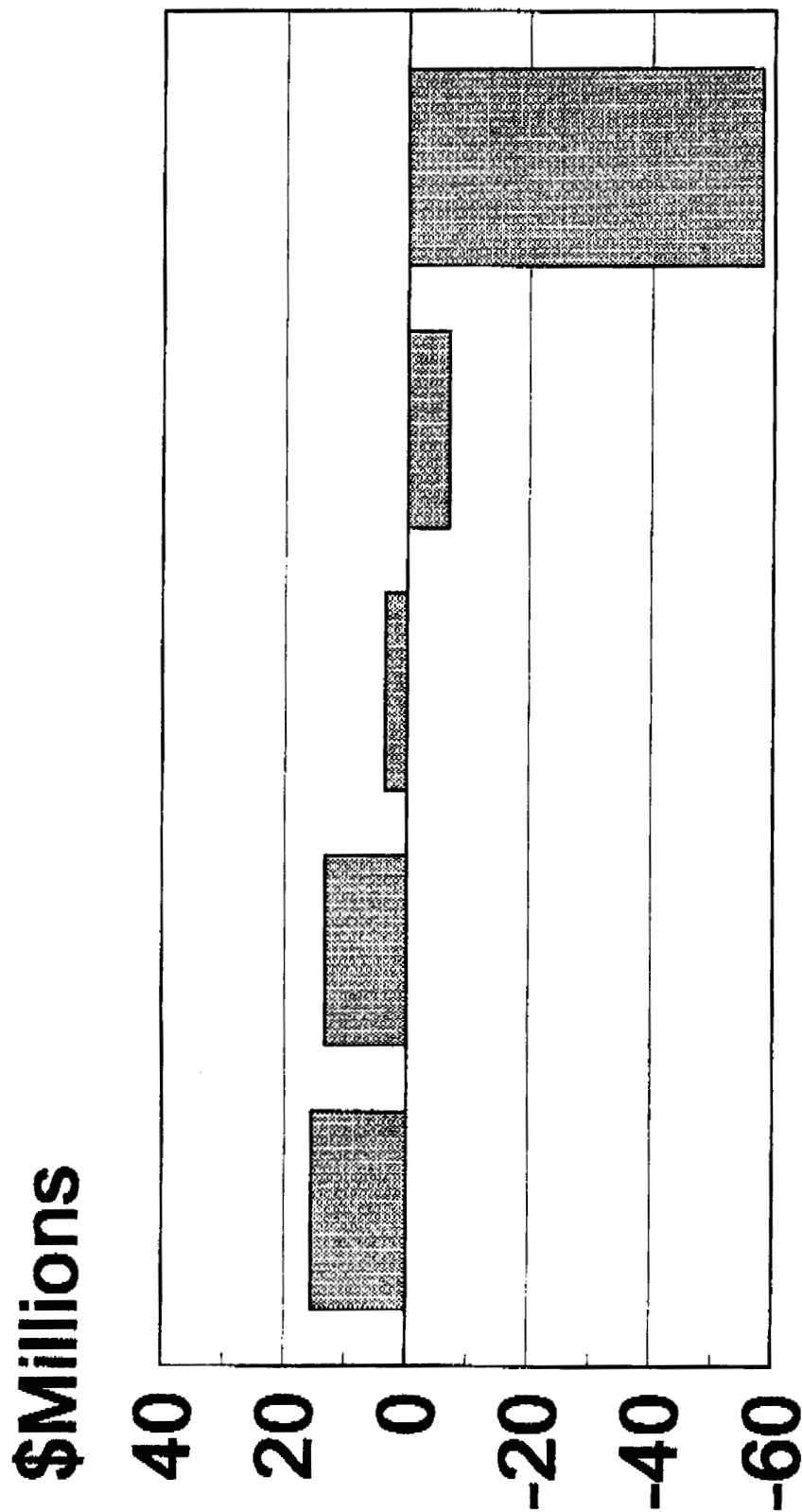
LEAD WORKLOAD



Source: RRAD BRAC Regional Hearing

MAINTENANCE PROFITABILITY

Cumulative FY90 - FY94



CCAD	TOAD	RRAD	ANAD	LEAD
15.5	13.3	3.6	-6.8	-58.0

Source: HQDESCOM Data

*NOR Cost Analysis
TRUE MAINT PROFITABILITY*

Validated Net Operating Results - Maintenance Missions

DESCOM DEPOTS Maintenance Profitability FY90 - FY94

DEPOT	90	91	92	93	94	TOTAL
ANAD	(\$10.7)	\$4.8	(\$8.4)	(\$1.7)	\$9.2	(\$6.8)
CCAD	\$0.7	(\$12.4)	\$48.3	(\$53.9)	\$32.8	\$15.5
LEAD	(\$13.4)	(\$14.3)	\$10.4	(\$15.7)	(\$25.0)	(\$58.0) ←→
RRAD	\$5.4	\$6.0	\$31.4	(\$37.2)	(\$2.0)	\$3.6
TOAD	(\$2.1)	\$4.1	\$6.3	(\$5.4)	\$10.4	\$13.3

Profitability FY90-FY94	Profitability Thru MAR FY95	TOTAL
----------------------------	--------------------------------	-------

ANAD	(\$6.8)	\$9.7	\$2.9
CCAD	\$15.5	\$2.2	\$17.7
LEAD	(\$58.0)	(\$5.2)	(\$63.2)
RRAD	\$3.6	(\$11.9)	(\$8.3)
TOAD	\$13.3	\$13.0	\$26.3

SOURCE: HQ DESCOM

Paladin Enterprise

1. Background.

Letterkenny Army Depot (LEAD) joined with United Defense LP (UDL, formerly FMC Corporation), in an arrangement to produce the M109A Paladin on LEAD property.

UDL was awarded a contract to convert 630 M109A2/3 Howitzers into M109A6 Paladin Howitzer Systems. UDL located a production operation in a warehouse at LEAD. The Army signed a Facilities Use Agreement which authorizes UDL to occupy the warehouse on a rent-free basis. UDL invested approximately \$3.3 M in renovations. The warehouse will be returned to the Army upon termination of the agreement.

A Facilities Use Agreement was signed in May of 1993. It will be in effect through December of 1998, with a one year option to extend through 1999.

2. The Paladin Enterprise is not a true teaming or partnering venture with private industry. Rather, it is a "lessor/lessee" relationship between LEAD and UDL. LEAD does no work for UDL or any other contractor. LEAD only rebuilds the M109A chassis and performs some testing with the contractor under a routine fund transfer (MIPR) with the Paladin Program Manager for the Army. In essence, LEAD's work in rebuilding the chassis is simply Government Furnished Equipment (GFE) to UDL.

3. The Paladin Enterprise is a short-term project. The arrangement expires in 1998; there is no guarantee that the one-year option will be exercised. There is some question about the continued viability of the Paladin. This system failed to make the Congressional procurement list for Fiscal Year 1995.

4. When the arrangement with UDL terminates, the renovated warehouse at LEAD is a prime candidate to excess for conversion to private industry reuse. Because this warehouse is surrounded by other warehouses, the entire area could be transitioned to private reuse as, for example, an industrial park or storage complex.

5. LEAD was the source of repair of the M109A2 Howitzer. In a 1993 public-to-private competition, LEAD lost Howitzer workload to private industry.

6. UDL has recently purchased the assets of a competitor, BMY of York, Pennsylvania, which is in close proximity of LEAD. Industry speculation has it that Department of Defense cutbacks may force UDL to close its large San Jose, California facility to cut costs, and transfer any remaining workload and equipment to the York, Pennsylvania facility. Under this scenario, UDL may have no further use for the LEAD facility because operations could be consolidated in York.

COST VS RATES

"COST VS RATES" IS A FLAWED ANALYSIS. IT TAKES TOBYHANNA'S OVERHEAD COSTS, BASED ON 3.938M DIRECT LABOR HOURS (DLHs), AND LETTERKENNY'S OVERHEAD COSTS, BASED ON 1.696M DLHs, AND THEN ATTEMPTS TO SPREAD EACH OF THOSE OVER A MILLION DLH BASE. (see Computation below) THIS COMPUTATION ASSUMES THAT TOTAL OVERHEAD COST WOULD REMAIN THE SAME DESPITE THE FACT THAT, UNDER THEIR PROPOSED SCENARIO, TOBYHANNA'S HOURS WOULD BE REDUCED BY 2.938M HOURS (A 75% WORKLOAD REDUCTION) BUT LETTERKENNY WOULD BE REDUCED BY ONLY 696K HOURS (A 41% WORKLOAD REDUCTION).

		COMPUTATION		
		TOTAL	LEAD	
WORKLOAD (HOURS)		OVERHEAD COST	"SCENARIO"	COST/1M
TOBYHANNA	3,938,000	\$80,978,854	1,000,000 DLH	\$81.00
LETTERKENNY	1,696,000	\$70,627,987	1,000,000 DLH	\$71.00

THIS EXERCISE SEEMS TO BE AN ATTEMPT TO EXPLAIN THE HIGH OVERHEAD RATE AND STRUCTURE OF LETTERKENNY BY PROJECTING THE COST OF AN ASSUMED LEVEL OF DIRECT EFFORT THAT IS VASTLY DIFFERENT FROM THE EXECUTION OF EITHER DEPOT, AND SUBSTANTIALLY LESS THAN THE DLH BASIS USED TO DEVELOP THE COSTS IN THE EXAMPLE.

THE TRUE COST FOR A MILLION HOURS OF EFFORT HAS BEEN AND WILL ALWAYS BE, THE PUBLISHED BID RATE FOR THAT DEPOT. TOBYHANNA'S OVERHEAD PORTION OF ITS FY95 BID RATE IS \$27.01 AND LETTERKENNY'S FY95 OVERHEAD PORTION IS \$43.28. LETTERKENNY'S OVERHEAD RATES (AND TRUE COSTS) ARE HIGHER THAN TOBYHANNA'S BECAUSE WHILE THEIR WORKLOAD IS 57% LESS THAN TOBYHANNA'S, THEIR OVERHEAD STRUCTURE IS ONLY 13% LESS THAN TOBYHANNA'S.

COST = RATES

THE ACTUAL COST TO THE CUSTOMER IS THE REQUIRED LEVEL OF DIRECT LABOR HOUR EFFORT TIMES THE PUBLISHED BID RATE FOR A DEPOT. USING LETTERKENNY'S ASSUMPTION OF 1M DLH, THE ACTUAL COST FOR FY95 IS AS FOLLOWS:

	PUBLISHED BID RATE	REQUIRED LEVEL OF DLH SUPPORT	COST TO CUSTOMER
TOBYHANNA	\$80.71	1,000,000 DLH	\$80,710,000
LETTERKENNY	\$98.32	1,000,000 DLH	\$98,320,000

THE LETTERKENNY "SCENARIO" ASSUMES THAT THE CUSTOMER IS AT THE MERCY OF THE DEPOTS COST STRUCTURE. IT IS NOT. RATES ARE BUILT SIX MONTHS PRIOR TO THE FY START. WHEN CUSTOMERS RECEIVE THEIR BUDGETS, THEY CAN DECIDE TO PLACE WORK BASED UPON CAPABILITY AND AFFORDABILITY, i.e., THE PUBLISHED BID RATES AT A PARTICULAR DEPOT. THIS PROCESS STABILIZES THE CUSTOMERS BUDGET AND REWARDS DEPOTS WITH EFFICIENT COST STRUCTURES AND LOWER RATES, WHICH IS THE GOAL OF THE STABILIZED RATE PROCESS.

CONC SHAFTER BRIEFING
4 MAY REGIONAL HEARING

COST VS RATES

TOAD	\$10.22	\$40,250,652.00	TOAD	\$10.34	\$40,723,262.00
ANAD	\$11.38	\$38,165,705.00	ANAD	\$15.32	\$41,676,466.00
RRAD	\$13.40	\$30,958,106.00	RRAD	\$ 8.32	\$23,696,915.00
LEAD	\$19.28	\$32,694,060.00	LEAD	\$22.37	\$37,933,927.00

A million hours of work =

\$71/HR @ LEAD
\$81/HR @ TOAD

$$\text{RATE} = \frac{\text{COST}}{\text{WORKLOAD}}$$

CONF. 200318X DRIETING
4 MAY REGIONAL MEMORANDUM

COSTS VS RATES: TWO METHODS

BASEOPS/MISSION OVERHEAD RATES =
TOTAL COSTS

BRAC ANALYSIS

[WORK POSITIONS] [95% AVAIL] [TOTAL POSSIBLE HOURS OF WORK PER DIRECT REPORTER]

DENOMINATOR
= CAPACITY

IBOE
RATE = $\frac{\text{COSTS}}{\text{CAPACITY}}$

MOH
RATE = $\frac{\text{MOH COSTS}}{\text{TOTAL POSSIBLE HOURS OF WORK PER DIRECT REPORTER}}$

ACTUAL COSTS

RATES = $\frac{\text{COSTS}}{\text{WORKLOAD}}$

DEFENSE LOGISTICS AGENCY STORAGE

The Defense Logistics Agency (DLA) comparison of key storage capability/capacity provided by Letterkenny Army Depot to the BRAC 1995 Commission is an apples and oranges comparison; data was distorted to favor Letterkenny. To provide an apples to apples comparison, the following analysis (based on the latest 805 Storage Management Report, 31 Dec 94) is provided:

DLA Total Attainable Storage Volume (cubic feet)

Letterkenny showed the following data as it relates to Letterkenny and Tobyhanna:

LEAD
25,150,000 ft³

TOAD
16,862,000 ft³

The totals that Letterkenny showed includes both *Shed* and *Other Storage* space categories from the 805 report. This space is inadequate for the storage of most material and is considered inferior storage space, i.e. Other storage space is defined as space used for storage in a building that was designed for other than storage (e.g. a barracks, a quonset hut, etc.). The Army's military value assessment used only general purpose warehouses, both heated and unheated, for the supply capacity measurement for just that reason. The Army's method presents a true representation of capacity to support a depot maintenance operation and the type of storage required. A proper adjustment is reflected in the following:

LEAD
14,082,000 ft³

TOAD
16,129,000 ft³

Tobyhanna has more cubic feet of proper storage space than Letterkenny.

DLA Net Covered Storage Space (square feet)

Again in this category Letterkenny distorted facts to show a higher rating. The following is the data presented by Letterkenny to the BRAC Commission:

LEAD
2,032,000 ft²

TOAD
1,174,000 ft²

Utilizing the Army's BRAC 95 military value assessment data for supply capacity results in the following fair and audited comparison:

LEAD
1,195,000 ft²

TOAD
1,231,000 ft²

Tobyhanna has more square feet of proper storage space as used and audited for the Army's BRAC 95 process than Letterkenny.

DLA Improved Outside Storage Gross Square Feet

While Letterkenny shows a large amount of Improved Outside Storage, this space has not been audited to reflect the definition of "being graded and hard surfaced or prepared with topping of some suitable materials so as to permit effective materials handling operations." Much of this Letterkenny storage is in unimproved fields.

The use of this type of storage is contrary to current Army guidance to get material under roof and protected from the elements. Most materials cannot be stored outside without cover; uncovered storage results in severely decreased lifespan for equipment.

DLA Volume VS Occupancy Bin Small Parts Storage Attainable Cubic Feet

Tobyhanna has additional Bin Storage in our new, state-of-the-art, Automated Storage and Retrieval System (ASRS). The ASRS provides a fully automated bin system, in which bins are computer picked and retrieved, thereby reducing manpower and costs significantly. This storage, consisting of over 13,000 bins or an additional 115,000 cubic feet, will handle all future requirements placed upon Tobyhanna without the need for expansion.

DLA Total Hazardous Material Storage Space Gross Square Feet

Letterkenny reports Hazardous Material Storage capacity of 118,000 square feet.

The Letterkenny facility is managed by DLA. Tobyhanna's Hazardous Material Storage facility is managed by Tobyhanna, not the local DLA. This significant difference between the management of these two facilities results in Letterkenny paying DLA for every issue and receipt from storage. Tobyhanna does not have to pay this cost and this represents a major cost savings for work done at Tobyhanna.

Additional Facts concerning Storage Capabilities

Heated warehouse storage is recognized as premium space for storage and is the required storage for many systems, components and items. The following is a comparison that reflects this premium category:

LEAD
230,000 ft³

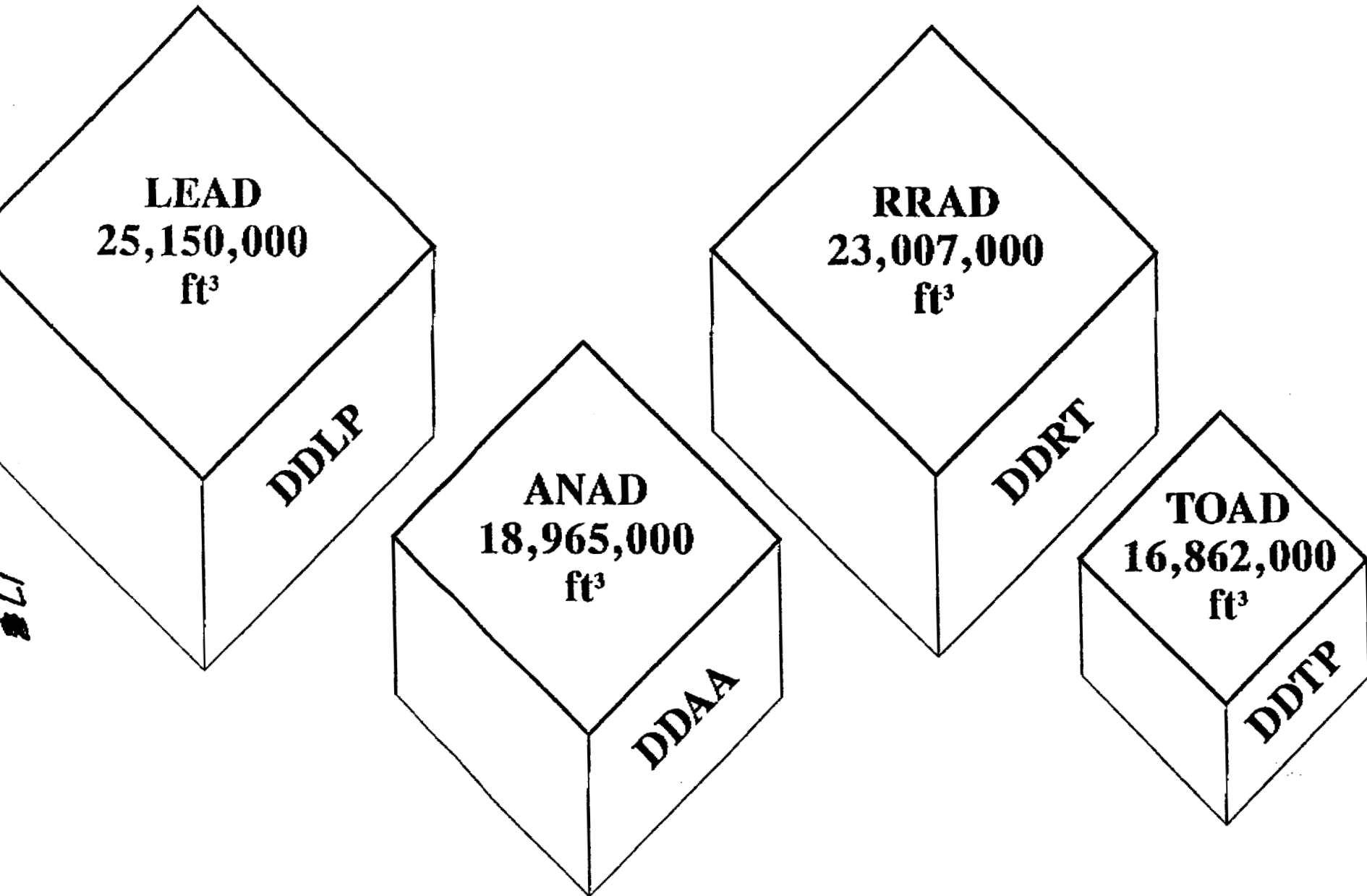
TOAD
7,583,000 ft³

Tobyhanna has over 30 times the amount of premium (heated warehouse) storage space that Letterkenny has. To upgrade the Letterkenny facilities to meet this type of storage capability would cost in the hundreds of millions of dollars. Additionally, the Cost of Supplies in Storage (COSIS) and the Cost of Materials in Storage (COMIS) increase significantly for materials (electronic assemblies, systems, etc.) that are stored in unheated environments. It is not surprising that Letterkenny historically has higher COSIS/COMIS requirements than Tobyhanna.

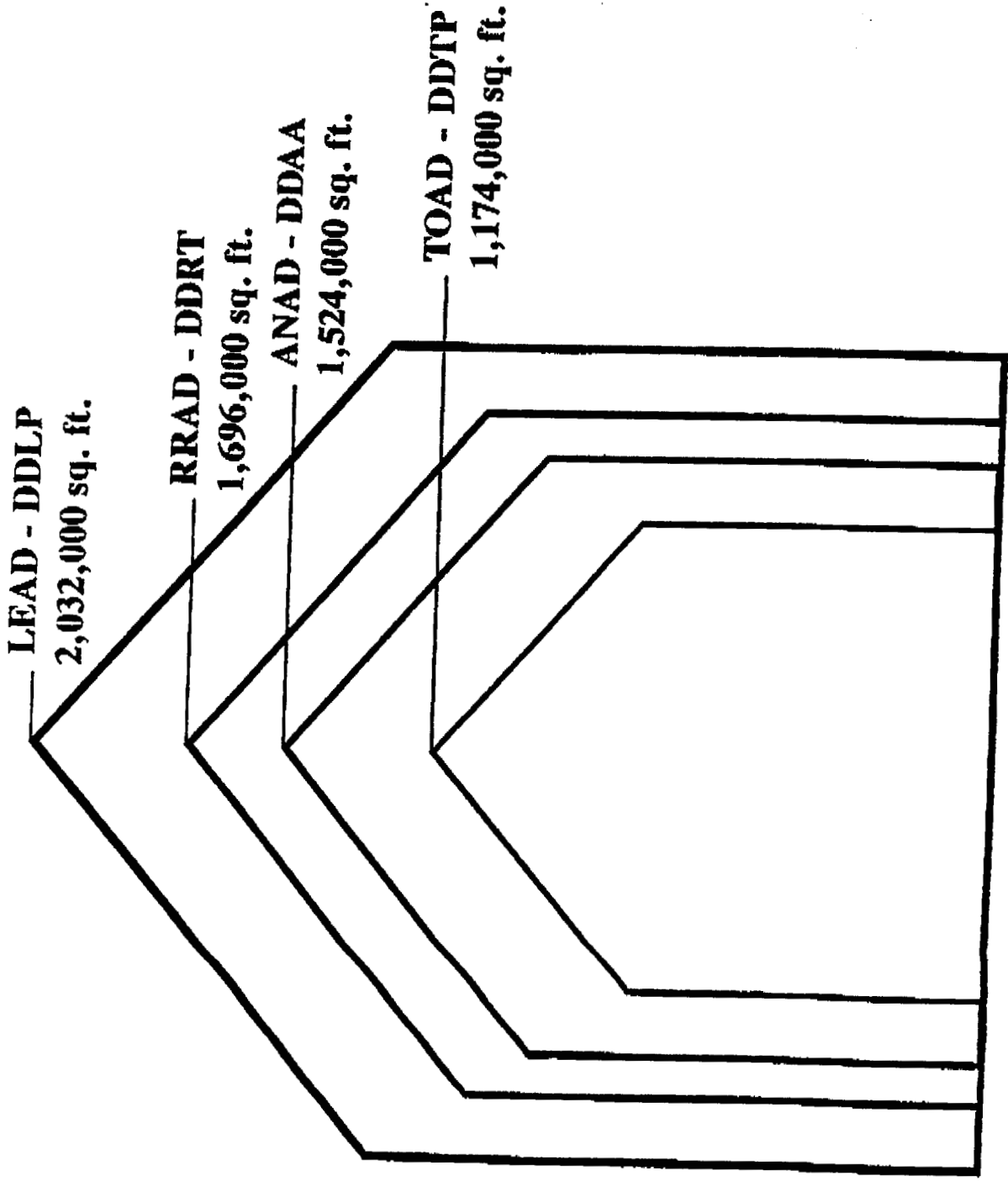
*CONC SHUSTER BRIEFING
4 MAY REGIONAL HEARING*

**The following is a depot comparison of
key storage capabilities/capacities.
All data obtained from 805 Storage
Management Report, Sep 94 & DLA
BRAC 95 Data Calls.**

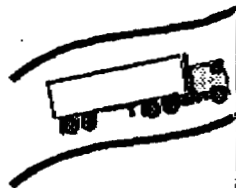
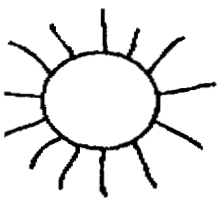
DLA TOTAL ATTAINABLE STORAGE VOLUME (CUBIC FEET)



DLA NET COVERED STORAGE SPACE SHEDS, TANKS, WAREHOUSES



CONG SHUSTER BRIEFING



LEAD
4,207,000

ANAD
3,812,000

RRAD
2,237,000

TOAD
968,000

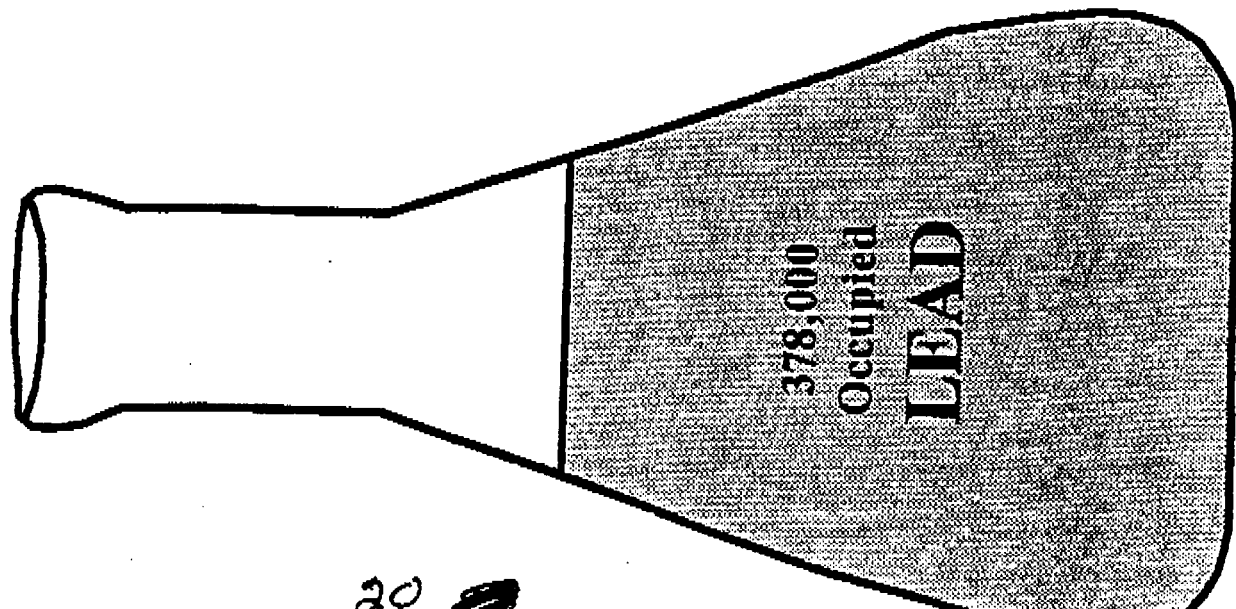


DLA
IMPROVED OUTSIDE STORAGE
GROSS SQUARE FEET

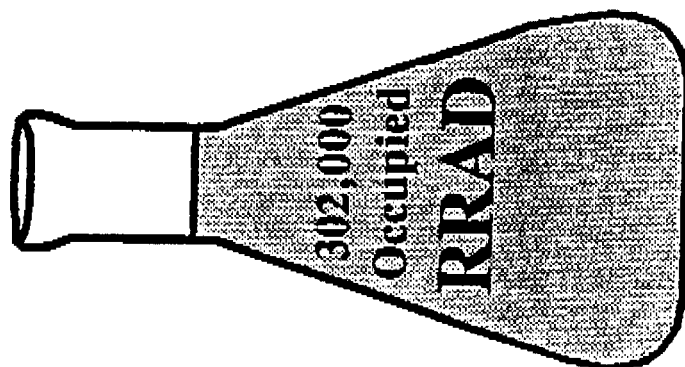
DLA VOLUME VS OCCUPANCY

BIN SMALL PARTS STORAGE
ATTAINABLE CUBIC FEET

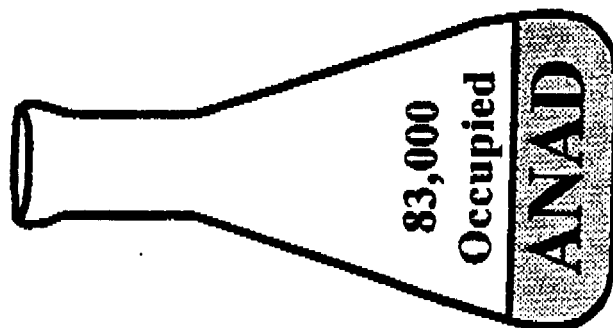
711,000



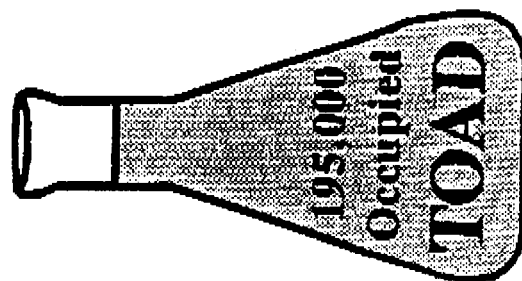
385,000



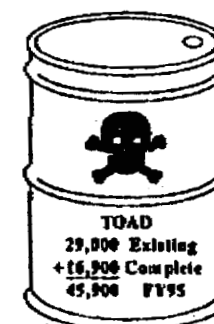
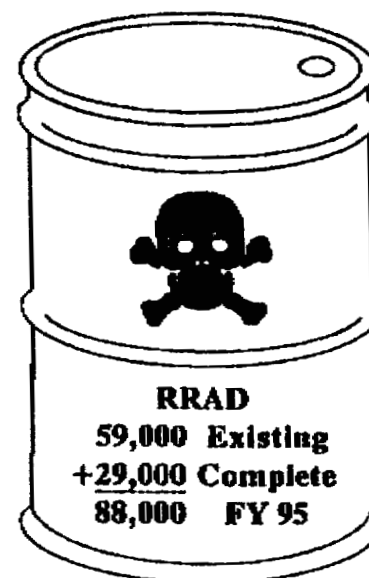
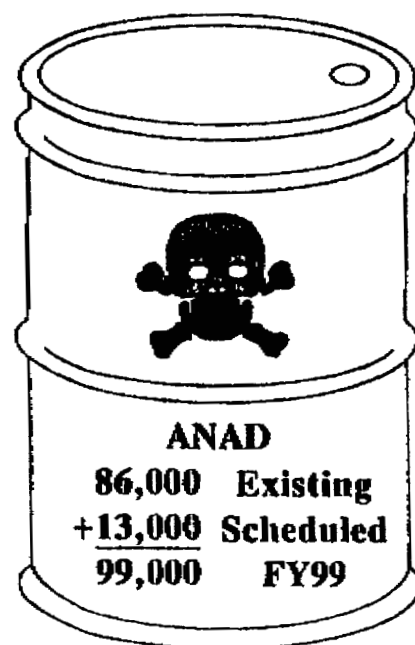
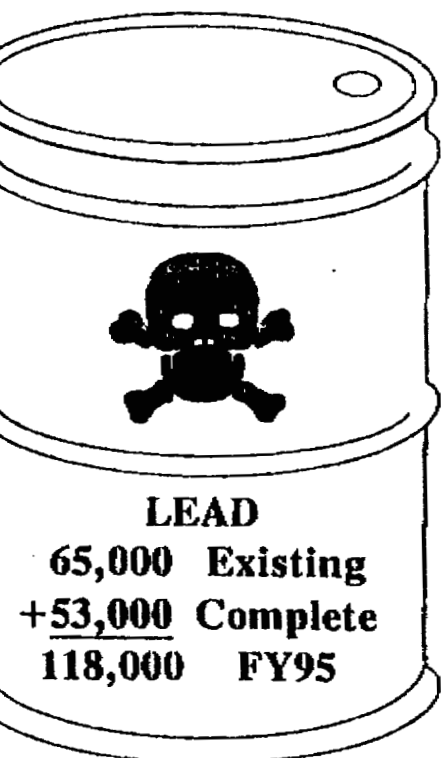
233,000



214,000



DLA TOTAL HAZARDOUS MATERIAL STORAGE SPACE GROSS SQUARE FEET



21

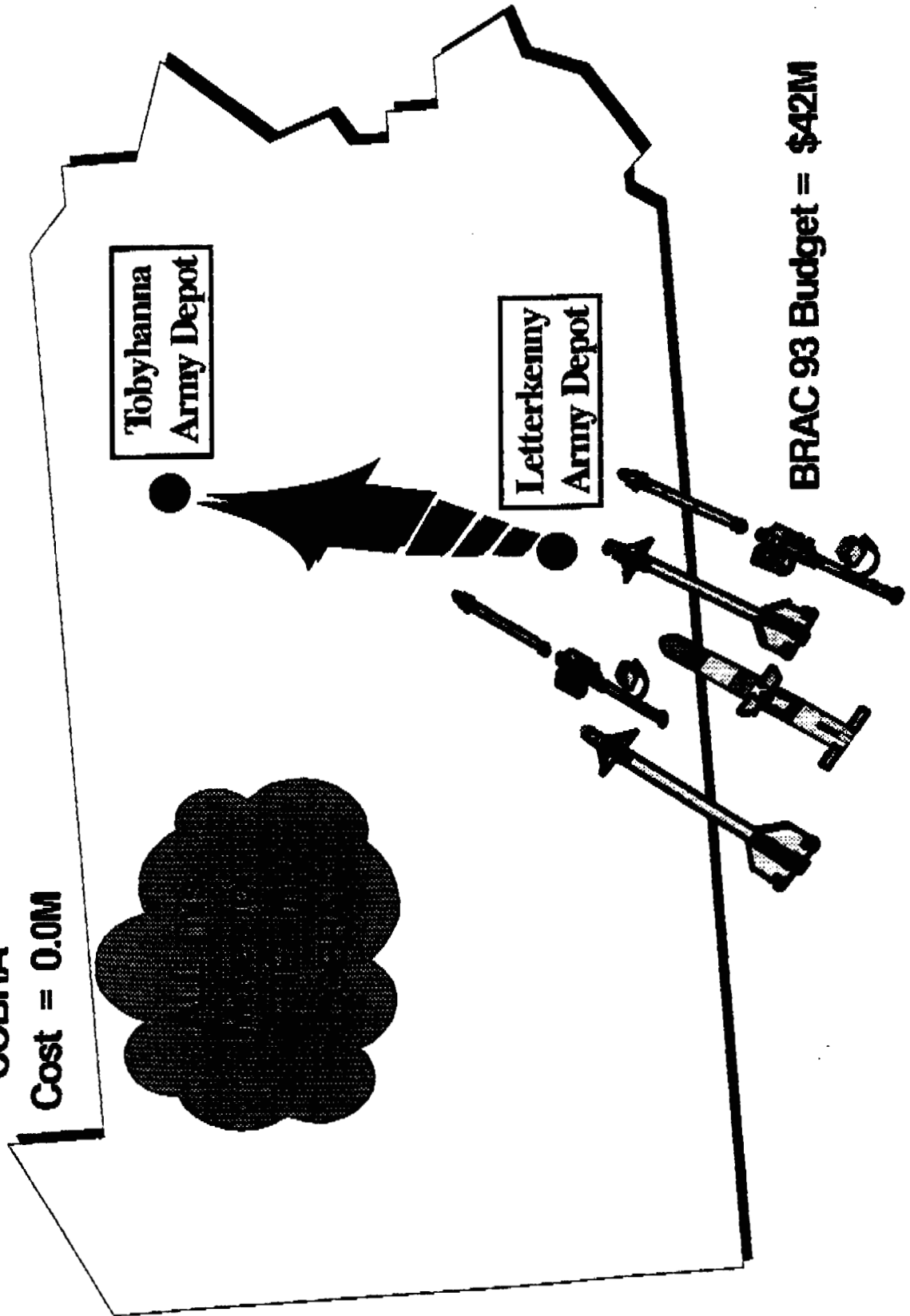
SUBJECT: Congressman Shuster Briefing to BRAC, 4 May 1995

1. Briefing suggests that under COBRA, missile workload transfer to TOAD costs nothing (see attached chart). In reality, BRAC estimate for that transfer is \$3-5M. GAO validated that estimate. The BRAC 93 estimate was \$42M. Since that time, however, newly completed facilities at TOAD, decreases in missile workload, and more precise cost estimating, account for the lower estimated cost of \$3-5M under current BRAC. And even the GAO, in their April 1995 report "Military Bases", concluded that "Assuming no significant additional costs are identified, the inclusion of the \$3-5M in the COBRA would have no impact on the current ROI."
2. Briefing maintains the one-time cost to transfer DDLP (the DLA operation at Letterkenny) is \$44.9M (see attached chart). Actually, the transfer could be accomplished as a phased-in transfer over an extended period. Movement of DLA stocks would be minimized by re-directing field returns to the gaining DLA site, rather than to LEAD. This approach would gradually attrit the DDLP stocks and significantly reduce costs. Additionally, DLA and item managers are aggressively purging excess/obsolete stocks from their inventories, which would further reduce stock transfer costs.
3. Briefing estimates Contractor/Interim Contractor Support (ICS) costs of \$70-100M for missile workload transfer (see attached chart). However, transfer could be accomplished without ICS, through a carefully managed, phased transfer to TOAD, just as was done when SAAD workload was transferred to TOAD as result of earlier BRAC-directed competitions. Historically, Tobyhanna has not required ICS for BRAC transfers from Lexington, SAAD, or Vint Hill; nor has ICS been required for competition wins. There is no reason that this transition should differ from past experience.
4. Briefing lists over \$48M in tenant transfer costs excluding DDLP (see attached chart). While those costs might be at least plausible under a "complete closure" scenario, the BRAC recommendation on LEAD is merely a realignment. Thus under the realignment proposal, tenants could remain at their present locations even after realignment and could avoid the large tenant transfer costs proposed in the briefing.

DOD Tactical Missile Transfer to Tobyhanna

COBRA

Cost = 0.0M



BRAC 93 Budget = \$42M

CONG SHUSTER BRIEFING
4 MAY
REGIONAL HEARING

THE LETTERKENNY TENANT SUMMARY ASSESSMENT

TENANT
REMOVAL
MANDATE

ROI
100+ YRS!

MILITARY VALUE ...

- SEVERE MISSION DESTRUCTION

NET COST ...

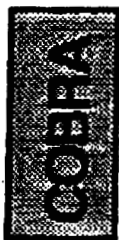
• DDLP COSTS -GAO	=	\$ 44.9 MILLION
• OTHER TENANTS	=	\$ 54.3 MILLION
TENANT TOTAL	=	\$ 99.2 MILLION

ECONOMIC IMPACT ... BRAC 91 = 628 JOBS LOST PLUS FOLLOWING CURRENT PROPOSAL IMPACTS:

- 1,504 JOBS/39% DEPOT POPULATION/ 2.4% AREA
EMPLOYMENT
- \$ 95 MILLION ANNUALLY LOST TO LOCAL ECONOMY
(SEVERAL HUNDRED MILLION WITH ECONOMIC MULTIPLIER AFFECT)

24

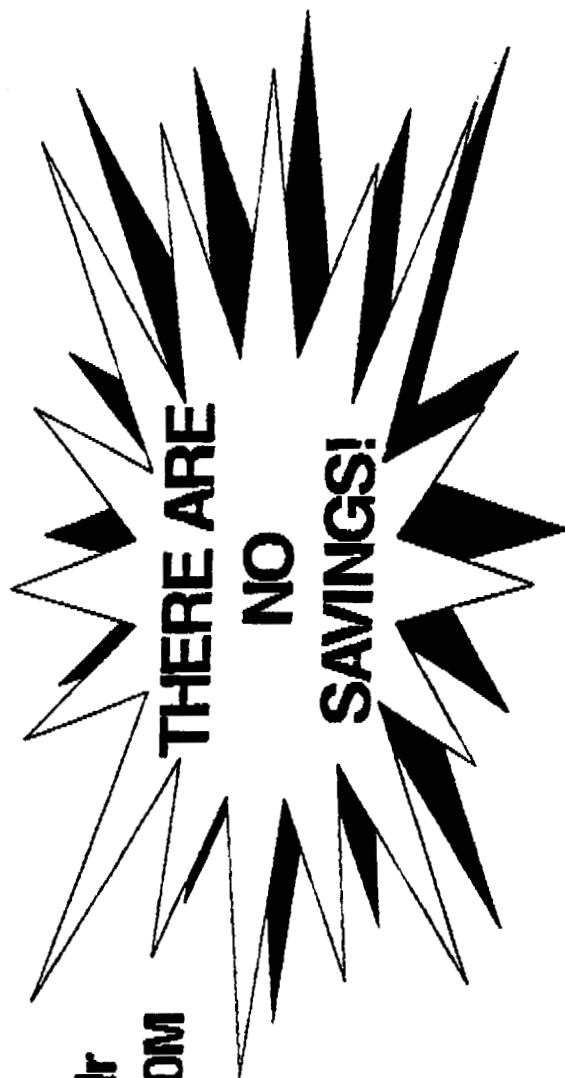
Above CORE Workload Transfer



- Eliminated 1180 Letterkenny workers = \$54.3M
- Base Operations Savings = 19.0M
\$73.3M



- Consider cost to contract
606 workers ~ 1 Million Manhours of work
- Contract Cost
70 to 100/Hr
\$70M - \$100M



NAME: Tobyhanna Army Depot

MISSION: Tobyhanna Army Depot is the largest communications-electronics fabrication and overhaul facility in the Department of Defense (DOD), covering approximately 1,345 acres, including a 400 acre industrial area. The depot mission includes the fabrication and repair of all types of communications and electronic systems, including voice, data, wire, satellite communications, electronic countermeasures, and secure communications.

POPULATION: The depot is the area's largest employer with a work force of 3499 civilians and 75 military personnel.

SUCCESS STORIES:

o TOAD is in full compliance with all environmental laws and regulations. There are no Notices of Violation or Compliance Orders pending.

o TOAD has an exceptional Pollution Prevention Program. TOAD's pollution prevention efforts have resulted in a reduction of over 80 percent of hazardous waste generated (compared to 1985 baseline data). The depot is in the process of implementing a Hazardous Materials Monitoring System (HMMS). The HMMS will further reduce hazardous material usage, thereby further reducing hazardous waste generation.

o TOAD has an exceptional Recycling Program. The depot's recycling program achieved a 73 percent reduction in solid waste disposal in area landfills by recycling 5,774 tons of material in 1994. Depot personnel worked with many diverse groups along with Local, County, and State officials, as well as academia and industry, to implement recycling and "buy recycled" programs throughout the County, State and Federal Government.

o TOAD has a state-of-the-art Hazardous Waste Storage Facility and has successfully obtained a Resource Conservation and Recovery Act Part B Permit to store hazardous waste for up to one year. Construction on a new state-of-the-art conforming storage facility for hazardous material will be completed in November of 1995.

o TOAD has implemented an effective Hazard Communication Program (HAZCOM) program. This program ensures that all employees are informed about chemical hazards on the job, and trains employees so they can identify potential exposure hazards. The program is effective in minimizing employee exposure by reducing the type and quantity of different chemicals, substituting less hazardous or non-hazardous chemicals, and identifying strategies to reduce worker exposure and improve operations.

o TOAD has successfully reduced volatile organic compound emissions through pollution prevention initiatives by 44 percent from 1992 to 1993 by using low VOC paints, improving accountability, and implementing controls over paint and paint-related materials. The depot developed an air emissions computer program to collect and compile data needed to complete air emissions reports. The depot has completed an Air Emissions Inventory and is in the process of submitting a Title V air permit to the Pennsylvania Department of Environmental Resources.

o TOAD has successfully reduced the toxicity of the effluent from the industrial pretreatment and sewage treatment plants.

o The depot implemented a water conservation program 2 years prior to the issuance of Executive Order 12902 of March 8, 1994, which mandated that such a program be established.

o TOAD complied with the Superfund Amendments and Reauthorization Act of 1968 (SARA), Title III, and the Emergency Planning and Community Right-To-Know Act (EPCRA) reporting requirements starting in 1991, four years prior to the Federal Facility Compliance Act which required compliance under Executive Order 12856.

o TOAD has inspected and inventoried all asbestos-containing materials in depot buildings and structures. The depot has developed and implemented an Asbestos Operations and Maintenance Plan and employees requiring training under Occupational Safety and Health Act (OSHA) regulations receive required annual and refresher training.

o All underground storage tanks (USTs) and aboveground storage tanks (ASTs) are in compliance with local, state and federal regulations. Registration information on storage tanks is maintained on a depot-designed computer data base. Annual tank tightness testing is performed on all UST's which require testing. An UST/AST tracking database is maintained using TANKMAN computer software and LOTUS 1-2-3 spreadsheets.

o TOAD has completed a Threatened and Endangered Species Survey to identify and document the location of listed species, candidates for listing, and their habitats.

o TOAD has implemented a Restoration Advisory Board (RAB) to promote greater community involvement in the depot's environmental restoration program. The RAB is comprised of representatives from the Army, U.S. Environmental Protection Agency, Pennsylvania Department of Environmental Resources and the local community. The RAB provides an integrated forum giving the public a greater opportunity to regularly review progress of the depot's environmental program and a chance to participate in continuous dialogue with the decision makers.

- o A Draft Record of Decision (ROD) has been prepared for the remediation of soil and groundwater at two Areas of Concern (AOC). Of 63 Areas of Concern, 52 require no further action. Draft Proposed Plans have been completed for several of these sites and are expected to be signed this Fiscal Year.
- o TOAD is the test bed site for a Facility Environmental Monitoring, Management System (FEMMS) and Pollution Prevention demonstration prototype program. FEMMS is a two year program for the testing and evaluating facility environmental technologies that will derive foreseeable benefits for the Army and industry. Congress has appropriated \$9 million for this Research and Development project.
- o TOAD has an excellent relationship with the various regulatory agencies and citizen groups. Environmental Management Division personnel regularly volunteer their time and participate with outside agencies. Some of these affiliations include: serving on the Board of the Solid Waste Advisory Committee of the Monroe County Municipal Waste Management Authority, the Pocono Mountain Chamber of Commerce's Environmental Committee, the Pennsylvania Adopt-A-Highway Program, the Pennsylvania Department of Transportation Highway Beautification Program, and the Restoration Advisory Board. Personnel also assist the National Park Services in the Volunteer in Parks (VIP) Program and the Delaware River Cleanup Project.
- o TOAD's environmental programs have won numerous Local, State, Army, DOD and EPA awards, including the following:
 - 1995 Certificate of Achievement, Office of Federal Environmental Executive
 - 1994 Secretary of Defense Environmental Award for Recycling - Individual Award
 - 1994 Secretary of the Army Environmental Award for Installation Recycling
 - 1994 Secretary of the Army Environmental Award for Recycling - Individual Award
 - 1994 EPA Stratospheric Ozone Protection Award
 - 1994 Pennsylvania Governor's Waste Minimization Award
 - 1994 Northeastern Pennsylvania Partners in Protecting the Environment Award
 - 1993 Pennsylvania Governor's Waste Minimization Award
 - 1993 Pocono Northeast Community Award for Environmental Action
 - 1993 Northeast Pennsylvania Environmental Partnership Award
 - 1992 Pennsylvania Governor's Waste Minimization Award - Industrial Category
 - 1992 Pennsylvania Governor's Waste Minimization Award - Municipal Category
 - 1992 Secretary of the Army Environmental Quality Award

PROBLEMS:

CLEANUP - The depot is presently negotiating clean-up standards with the Environmental Protection Agency and the Pennsylvania Department of Environmental Resources. Several areas of concern require investigation and may require remediation.

COMPLIANCE - None

CONSERVATION - None

MILITARY CONSTRUCTION PROJECTS:

o A \$2 Million construction project is underway to prevent stormwater runoff pollution from the coal storage area.

o A \$1.9 Million pollution prevention project is underway to construct a Hazardous Material Conforming Storage Facility.

TO

GLENN KNOEPFLE

FROM FRANK ZARDECKI

GLENN,

THIS IS OUR RESPONSE TO THE
LETTERKENNY DATA PRESENTED AT THE
4 MAY REGIONAL HEARING AT BALTIMORE.

Document Separator

ARMY VERSUS COMMISSION ADD COMMUNICATIONS

	REALIGN LETTERKENNY	CLOSE TOBYHANNA
	ARMY	COMMISSION
1-TIME COST	\$67 M	\$154 M
STEADY STATE SAVINGS	\$78 M	\$33 M
NET PRESENT VALUE (20 YEARS)	\$952 M	\$226 M
CIVILIAN EMPLOYEE ELIMINATION	1267	535
MILITARY SPACES SAVED	20	34
RETURN ON INVESTMENT (YEARS)	IMMEDIATE	4
ROI YEAR	1998	2005

ARMY RECOMMENDATIONS:

43% CHEAPER IN 1 TIME COST
2 TIMES THE STEADY STATE SAVINGS
4 YEARS EARLIER RETURN ON INVESTMENT

THE ARMY BIASING STUDY

11

Save Army TABS office



ARMY VERSUS COMMISSION ADD TACTICAL MISSILES

REALIGN CLOSE - LEAD REALIGN - LEAD
LETTERKENNY MOVE TO HILL AFB MOVE TO HILL AFB

COMMISSION

COMMISSION

ARMY

\$220 M

\$471 M

\$67 M

\$65 M

\$91 M

\$78 M

\$220 M

\$673 M

\$952 M

1018

1246

1267

23

23

20

2

5

IMMEDIATE

2002

2005

1998

ROI YEAR

ARMY RECOMMENDATIONS:

CHEAPER IN 1 TIME COST
FASTER STEADY STATE SAVINGS
GREATER NET PRESENT VALUE
EARLIER RETURN ON INVESTMENT

811 P2
5765

THE ARMY BASTION STUDY

ARMY VERSUS COMMISSION ADD COMBAT VEHICLES

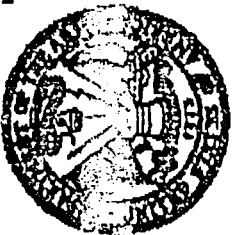
	CLOSE RED RIVER	REALIGN ANNISTON
	ARMY	COMMISSION
1-TIME COST	\$59 M	\$120 M
STEADY STATE SAVINGS	\$123 M	\$33 M
NET PRESENT VALUE (20 YEARS)	\$1,497 M	\$234 M
CIVILIAN EMPLOYEE ELIMINATION	1955	639
MILITARY SPACES SAVED	14	1
RETURN ON INVESTMENT (YEARS)	IMMEDIATE	4
ROI YEAR	1999	2005

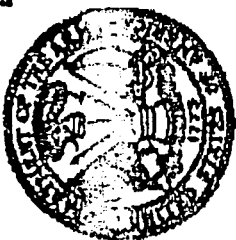
ARMY RECOMMENDATIONS:

53 % CHEAPER IN 1 TIME COST
4 TIMES THE STEADY STATE SAVINGS
4 YEARS EARLIER RETURN ON INVESTMENT

THE ARMY ENDING STUDY

13





SUMMARY

- ARMY RECOMMENDATIONS ARE SUPPORTED BY ARMY STATIONING STRATEGY
- ARMY RECOMMENDATIONS ARE SUPPORTABLE FROM AN OPERATIONAL ASPECT
- ARMY RECOMMENDATIONS ARE SUPPORTED BY JCSG-DM
- ARMY RECOMMENDATIONS ARE THE LEAST COSTLY AND MOST COST EFFECTIVE
- DoD IS STILL WILL REDUCE TOA BY \$729 M AND REDUCING PERSONNEL (DORN MEMO)

BOTTOM LINE OF ARMY ALTERNATIVE

- CLOSES TWO DEPOTS
- MAINTAINS A DoD TACTICAL MISSILE DEPOT (TOBYHANNA)
- SAVES DoD AND THE ARMY \$2,430 M OVER 20 YEARS

THE ARMY BASING STUDY

SDSTO-PE

3 May 1995

INFORMATION PAPER

SUBJECT: Tactical Missile Realignment to TOAD

PRODUCTION FLOOR SPACE REQUIRED - 264,000 Sq FT

<u>Workload Category</u>	<u>Space Req'd</u>
Guidance and Control	120K sq. ft.
Support Equipment	134K sq. ft.
- Launchers	
- Radar Equipment	
- Electronic Assemblages	
- Etc.	
Prime Movers	10K sq. ft.
- Trucks	
- HEMTT (Heavy Expanded Mobility Tactical Truck)	

Prime mover depot level maintenance will be done at Anniston Army Depot. It should be noted that the frequency of this requirement is small and organizational maintenance requirements are the dominant part of this workload. Organizational maintenance will be done at Tobyhanna within existing shops. *LESS THAN 10 TRUCKS PER YR.*

This profile is one of five options presently under consideration for the realignment but is representative as an order of magnitude number.

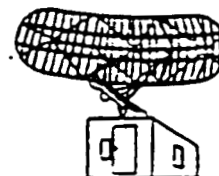
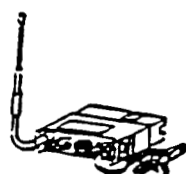
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DEFENSE DEPOT MAINTENANCE COUNCIL
STRENGTHENING DEPOT MAINTENANCE ACTIVITIES

GROUND COMMUNICATIONS AND ELECTRONICS
DEPOT MAINTENANCE STUDY



PREPARED FOR:

DEFENSE DEPOT MAINTENANCE COUNCIL

16 JANUARY 1991



GROUND COMMUNICATIONS AND ELECTRONICS STUDY

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REFERENCES:

(a) Memorandum from Mr. Robert T. Mason, Executive Secretary, DDMC, Office of ASD (P&L) for DDMC members dated 8 August 1990

(b) CMC message 0101103Z August 1990 appointing Col. Terry Hodges USMC, as the GCE Study Group Chairman.

(c) Defense Management Report Decision (DRMD) No. 908 (Consolidating Depot Maintenance) w/attachment, dated 17 November 1990

(d) DMR Option No. C-F24- Consolidate Sacramento Area Depot Communications and Electronics Maintenance activities at a single location in Sacramento, California.

(e) Communications-Electronics (CE) action team final report dated 13 April 1990.

(f) Sacramento ALC Point Paper (undated) rebutting reference (e).

(g) Memorandum ASD(P&L), L/MD dated 26 September 1990.

(h) DON Memorandum for Assistant Secretary of Defense (P&L) Subj: Review of Depot Maintenance Workloads - Info Memorandum (undated)

(i) Department of the Army, HQ-AMC memorandum (undated), response to reference (g).

(j) Department of the Air Force, HQ-ALC letter dated 22 October 1990, response to reference (g).

(k) Navy Support Group Review 3-5 January 1990 of Navy C&E depot maintenance consolidation study.

(l) US Army study AR-5-10, study of the proposed closure of the Sacramento Army Depot (SAAD), dated September 1990. (Draft)

(m) DA/DN/DAF Joint Memorandum for Assistant Secretary of Defense. Subj: Strengthening Depot Maintenance, dated 28 September 1990.

(n) Legislative Report - Applicable provisions of FY-91 National Defense Authorization Act & FY-91 Defense Appropriations Act

(o) ASD letter of 13 October 1990, Subj: Coordinated Long Range Plan for Reducing Depot Maintenance Costs

- (p) Rotary Wing Study Report dated 1 October 1990
- (q) Joint Depot Maintenance Analysis Group, Gentile Air Force Station letter of 18 October 1990; Subj: Joint Depot Business Plan
- (r) Draft Cost Comparability Handbook, dated 4 December 1990
- (s) DDMC Performance Study, draft report, dated November 1990
- (t) DDMC Capacity Study, final report, undated
- (u) Chairman GCE Study Group ltr to Chairman Cost Comparability Study Group, Code 880 of 11 December 1990 w/1st Endorsement from JPCG-DM Service Executive Group
- (v) Chairman Cost Comparability Working Group letter MAW dated 2 Jan 91 to JPCG-DM Service Executive Group

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APPENDIX (5)	OPTION 3 SAAD & SM-ALC TO TOAD Wkld/Cap. DATA
APPENDIX (6)	OPTION 3 SAAD AND SM-ALC TO TOAD Eval. (AIR FORCE)
APPENDIX (7)	OPTION 3 SAAD AND SM-ALC TO TOAD Eval. (ARMY)
APPENDIX (8)	OPTION 4 SM-ALC TO OTHER ALC'S Wkld/Cap DATA
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APPENDIX (11)	Production Cost Analysis Worksheet & Background Data

EXECUTIVE SUMMARY

DEPARTMENT OF DEFENSE GROUND COMMUNICATIONS AND ELECTRONICS STUDY

1. INTRODUCTION:

a. Reference (a), a memorandum from Mr. Robert T. Mason, Executive Secretary, Defense Depot Maintenance Council, Office of the Assistant Secretary of Defense, Production and Logistics, for Defense Depot Maintenance Council members, dated 8 August 1990, established the Ground Communications and Electronics Study and assigned the chairmanship to the United States Marine Corps.

b. Reference (b), a message from the Commandant of the Marine Corps appointed Colonel Terry L. Hodges, USMC, as the Ground Communications and Electronics (GCE) Study Group Chairman.

2. MEETINGS: In accordance with references (a) and (b), a multi-service, Ground Communications and Electronics Study Team was formed and met seven times at various locations to deliberate the depot maintenance requirements of DoD GCE.

3. TEAM COMPOSITION/SITE VISITS: The GCE team composition included representatives from the Army, Navy, Air Force, and Marine Corps. Site visits of GCE depots included Marine Corps Logistics Base, Albany, GA; Tobyhanna Army Depot, Tobyhanna, PA; Sacramento Army Depot and Sacramento Air Logistics Center, Sacramento, CA.

4. OPTIONS ANALYZED:

The GCE team initially identified ten options to evaluate including the movement of Army, Navy, Air Force, and Marine Corps GCE workload on each coast, coast to coast and to Centers of Technical Excellence. The GCE team settled on five options which appeared to offer the highest economic return, were reasonably achievable, and dealt best with the capacity utilization problems evident at some depots. The options analyzed were:

OPTION 1. Move Sacramento Army Depot (SAAD) GCE workload (FY-93 = 813,352 hours) to Tobyhanna Army Depot (TOAD) and the GCE Electro-Optics workload (FY-93 = 100,648 hours) to Anniston Army Depot (ANAD). Appendix (1) illustrates the impact of workload transferred from SAAD to TOAD and ANAD. Appendix (2) provides a detailed assessment of this option from the Army's perspective.

OPTION 2. Move Sacramento Army Depot (SAAD) GCE workload (FY-93 including electro-optics = 914,000 hours) to Sacramento Air Logistics Center (SM-ALC). Appendix (3) illustrates the capacity utilization impact of moving SAAD workload to SM-ALC. Appendix (4) provides a detailed assessment of this option from the Air Force's perspective.

OPTION 3. Move Sacramento Army Depot (SAAD) GCE workload (FY-93 = 813,352 hours) and Sacramento Air Logistics Center (SM-ALC) total GCE workload (FY-93 = 1,306,000 hours) to Tobyhanna Army Depot (TOAD) with Army Electro-Optics workload (FY-93 = 100,648 hours) going to ANAD. Appendix (5) illustrates the impact of GCE workload transferred from SAAD and SM-ALC to TOAD and ANAD. Appendices (6) and (7) provide detailed assessments of this option from the individual perspective of the Army and the Air Force.

OPTION 4. Move Sacramento Air Logistics Center GCE workload (FY-93 = 1,306,000 hours) to other Air Force Air Logistics Centers. Appendix (8) illustrates only the transfer, within the Air Force, of the SM-ALC GCE workload to the other Air Force ALC'S. Appendix (9) provides a detailed assessment by the Air Force of this option.

OPTION 5. Appendix (10) provides an in-depth analysis of the opportunities available for potential savings through competition on above core workloads.

5. BASELINE WORKLOAD: The baseline for analysis of GCE was established as the currently funded and projected to be funded organic, inter-service and contracted GCE workload for the fiscal years FY-91 through FY-95.

6. DATA ASSUMPTIONS: The study group agreed that performance, quality, productivity, and capacity measurement among service depots and commercial sources, although not directly comparable in every detail, can be correlated adequately to make reasonable judgments relative to this analysis. The uniform labor rates provided by the Cost Comparability Study Group in reference (v), to determine production costs, provide the best technique to level the playing field for the analysis of total workload relocations. The data contained in each option evaluation package was prepared by the service most directly affected by that option. The evaluation data for each option is provided in Appendices (2), (4), (6), (7) and (9).

7. COST ANALYSIS: Data analysis centered on the estimated cost and potential savings to be realized from the transfer of GCE workload from one source of repair to another. Cost factors in the analysis included equipment, facilities, personnel, transportation, production costs, and other factors. Production costs were determined using uniform labor rates that were established for SM-ALC and TOAD by the Cost Comparability Study Group and were applied to the total workloads to be transferred. Additional data is provided in Appendix (11) concerning rates applied to the analysis. Workload analyzed also included sole-source private sector contracts for potential savings through relocation to organic depots, organic depot workload to be competed, and the economies to be realized through movement of workload from one DoD depot to another to improve capacity utilization and inter-servicing objectives. Data available did not support meaningful analysis or results in the area of

immediate improvement in inter-servicing or competition in private sector workload changes. The sheer magnitude of the data plus the acknowledged inconsistencies and errors prevented any worthwhile progress. Option 5, however, does provide the basis for significant savings by all services through systematic competition of the GCE workload.

8. RECOMMENDATIONS:

A. CAPACITY UTILIZATION: Evaluation of the data developed indicates that Option 1, the transfer of the GCE workload from SAAD to TOAD and ANAD is the most reasonable and prudent business decision for the DoD to make and will result in a \$40.959 million reduction in the cost of operations for depot level maintenance of Army GCE requirements during the five year period covered by the study. Implementation of Option 1 will result in a change in capacity utilization at TOAD from 46% to 64%. After FY-95, an additional \$20.807 million savings per year is estimated. TOAD is considered fully capable to assume the additional workload, with only minor facility and equipment adjustments necessary, and should provide the full level of GCE support required at a substantial cost savings. The relocation of the GCE portion of the Electro-Optics workload from SAAD to ANAD may require coordination with the movement of the remaining Missile Electro-Optics workload at SAAD. Chart 1 illustrates the expected cost/(saving) through the period ending FY-95. Chart 2 illustrates the long term savings over time for all of the options. It should be noted that Option 3 offers significant long term savings but because of the initial cost to relocate the workloads to TOAD, the payback is not achieved until the eighth year after implementation.

B. CAPACITY LAYAWAY: Capacity utilization improvements also examined included potential layaway of excess capacity in several depots. Implementation of Option 1 (SAAD to TOAD) will result in a change in capacity utilization from 46% to 64% at TOAD. SM-ALC utilization will remain at 67% to 71% of capacity throughout the period of the study. Layaway at both TOAD and SM-ALC is possible but will require rearrangement of facilities at some cost. Layaway at both depots, however, will save money and should be accomplished as soon as possible. Recommend that layaway of excess capacity be directed by each service to achieve at least 90% capacity utilization within the next two years. It is further recommended that a cost savings report be required to keep track of the savings generated by this activity.

C. INTER-SERVICING AND COMPETITION: Evaluation of the potential for improvement in inter-service workload transfers and public/private competition indicates significant opportunities exist through application of the principals established in Option 5. It is recommended that the plan contained in Option 5, which distributes the savings identified in reference (m), the Joint Service Memorandum for the Assistant Secretary of Defense, be approved for implementation. The plan will save over \$59 million

on GCE workload scheduled during the period FY-92 to FY-95, if fully implemented. Action to implement this option should begin in FY-91 and will require the development of a detailed business plan by each service. Development of the necessary technical data to support full and meaningful competition will require a large scale effort and should begin immediately. There was unanimous agreement by the study group membership that candidates, by specific item identification, for competition and interservicing could not be provided at this time, but would be developed by the service business offices when core statements are completed and procedures are in place. Schedules, priorities, and plans should be built around data supportable competitions. Tables 1 through 4 of Appendix (10) provide a breakout by year. Table 5 provides a summary of the total savings for Option 5.

Gerald Mercurio
Mr. Gerald Mercurio
Army
Primary Representative

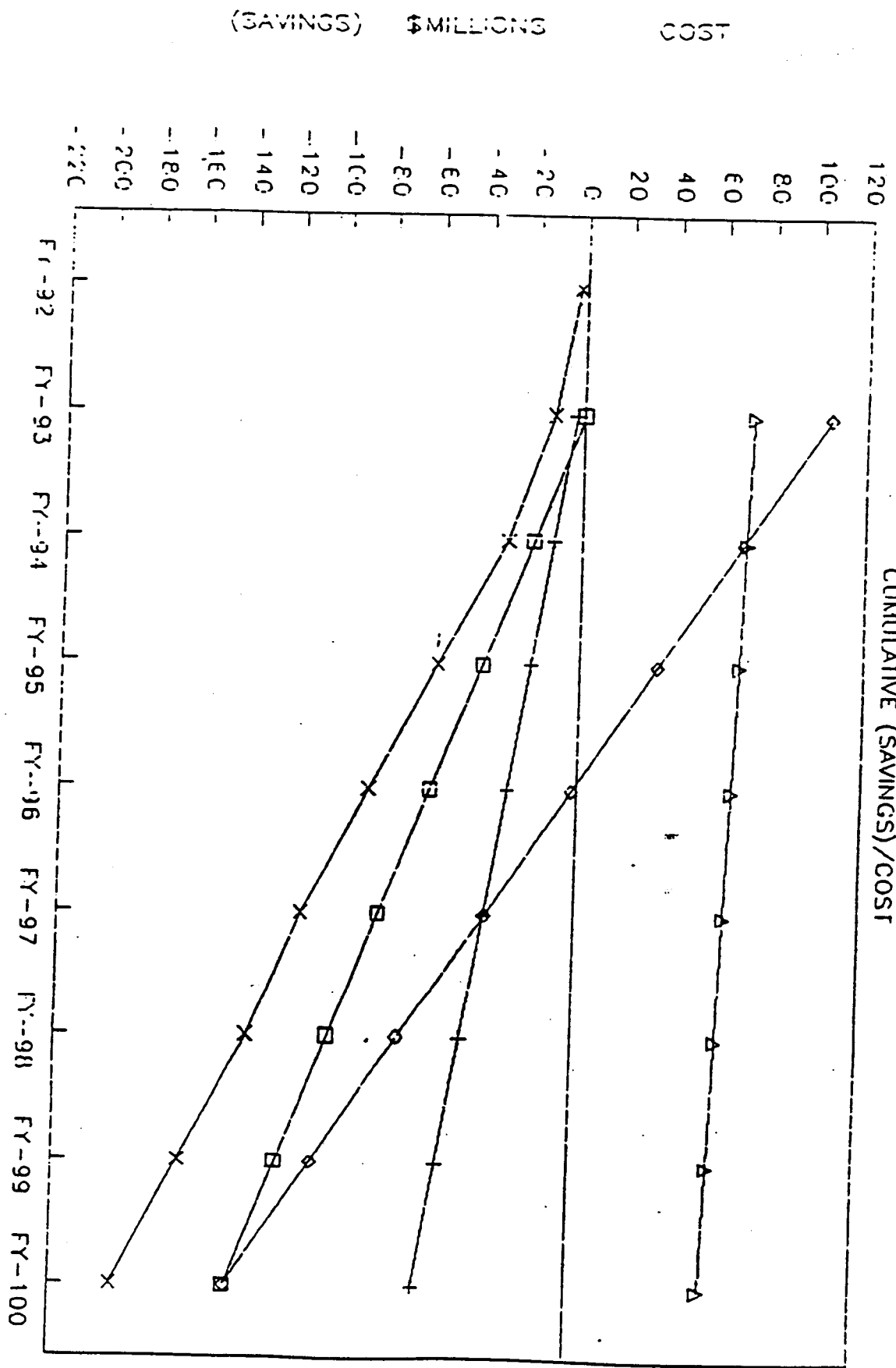
Marvin Millen
Mr. Marvin Millen
Navy
Primary Representative

Richard Carr
Mr. Richard Carr
Air Force,
Primary Representative

Terry Hodges
Colonel Terry Hodges, USMC
Marine Corps
Chairman

GCE STUDY OPTION ANALYSIS

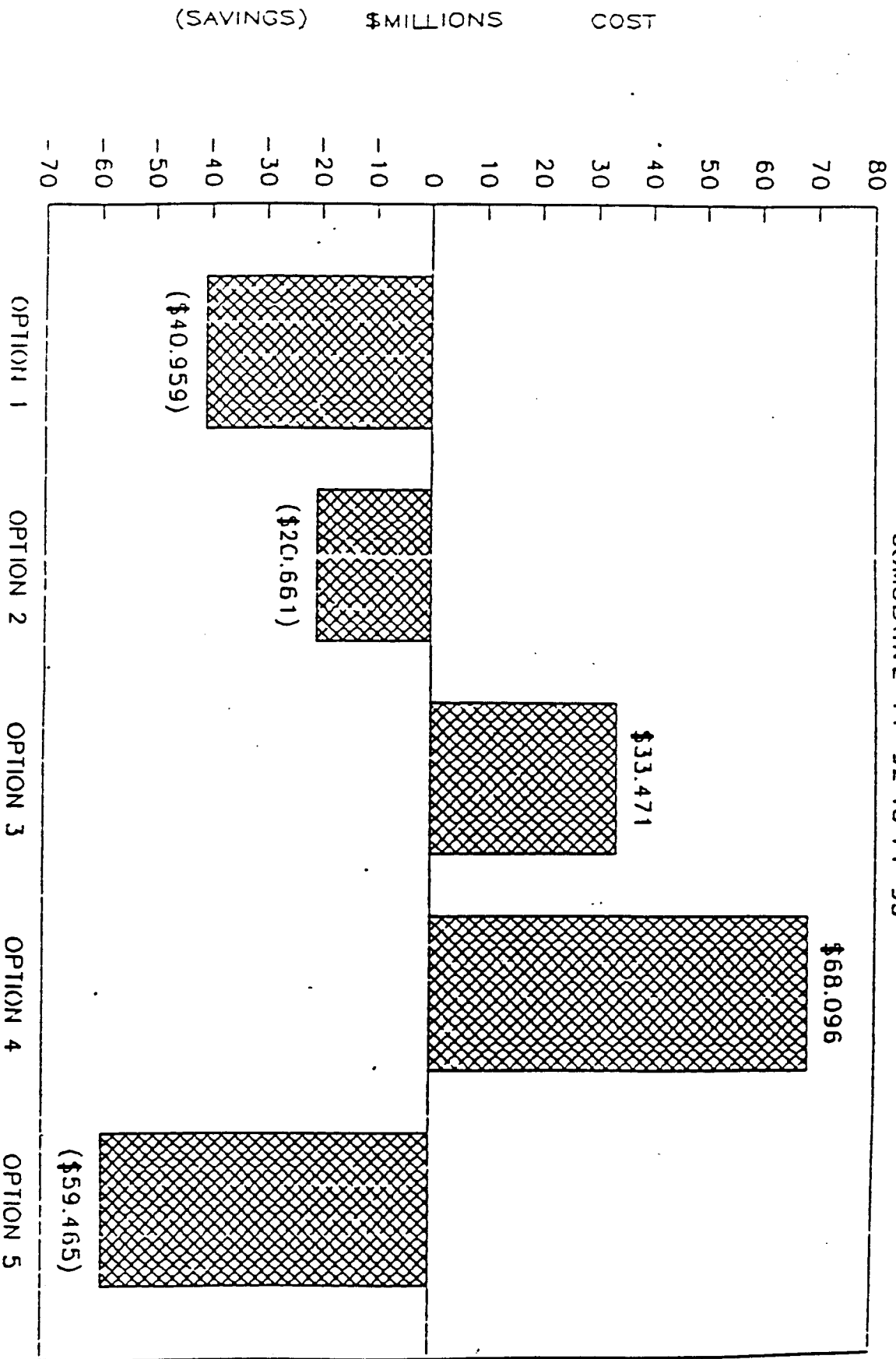
CUMULATIVE (SAVINGS)/COST



OPTION 1 + OPTION 2 ◊ OPTION 3 Δ OPTION 4 X OPTION 5

GCE STUDY OPTION ANALYSIS

CUMULATIVE FY-92 TO FY-95



DEFENSE DEPOT MAINTENANCE COUNCIL
STRENGTHENING DEPOT MAINTENANCE ACTIVITIES
Ground Communications and Electronics Study

1. INTRODUCTION:

a. Reference (a), a memorandum from Mr. Robert T. Mason, Executive Secretary, Defense Depot Maintenance Council, Office of the Assistant Secretary of Defense, Production and Logistics, for Defense Depot Maintenance Council members, established the Ground Communications and Electronics Study and assigned the chairmanship to the United States Marine Corps.

b. Reference (b), a message from the Commandant of the Marine Corps appointed Colonel Terry L. Hodges, USMC, as the Ground Communications and Electronics (GCE) Study Group chairman.

2. STUDY METHODOLOGY:

A. SCOPE:

(1) This study analyzed the Army, Navy, Air Force, and Marine Corps Ground Communications and Electronics (GCE) depot maintenance workload and depot capacities while recognizing and building upon those previous studies that impact upon depot maintenance of GCE. Ten options were initially identified for analysis including the GCE workload of each service. Selection of the options to analyze in detail took considerable time and debate and eventually settled on the issues that could be dealt with in the time available, offered the highest economic opportunity, related to depots that had been previously identified for potential closure/consolidation and could provide meaningful improvement in capacity utilization at underutilized depots. Options 1 through 5 were selected as the best choices to explore in-depth. Options 1 through 4 analyze relocation of GCE workload from one or more service depot(s) to another while Option 5 lays the foundation for the continued strengthening of GCE depot maintenance through public/public and public/private competition.

(2) The study group considered references (a) through (v) along with other relevant information concerning Ground Communications and Electronics in the development of the options selected.

B. FACTS: The following facts were identified which had a direct bearing on the conduct and outcome of the GCE study.

(1) The transfer of GCE workload from Sacramento Army Depot (SAAD) to various locations became a study option even though savings to be realized through such movement may have been accounted for in the DMRD 908 \$1.7 billion savings plan. Relocation of workload/closure of SAAD has been studied many times and is well documented in the references.

(2) Impact of Desert Shield requirements, while considerable at certain locations, was not considered as part of the planned funded workload.

(3) Prior Air Force and Army special studies relative to Ground Communications and Electronics, replies and rebuttals, were reviewed and considered, where appropriate.

(4) Official published FY-91 industrial fund billing rates were available to determine production costs for all depots except the Air Force. For the purposes of this study, the Cost Comparability Study Group established rates for SM-ALC and TOAD to determine production costs.

C. ASSUMPTIONS: The following assumptions were identified as directly relevant to the conduct and outcome of the study.

(1) Performance, quality, productivity, and capacity measurement among service depots and commercial sources are reasonably comparable. Production costs were determined by use of a special labor rate established by the Cost Comparability Study Group for the depots being evaluated which provides the most effective way of assessing the cost to produce at a given depot.

(2) Indirect cost savings of 16%, identified in the Rotary Wing Study, through the increase in the ratio of direct personnel to indirect personnel upon consolidation of workload, was accepted as a valid overhead cost reduction factor through workload consolidation.

(3) DoD 4151.15H, Depot Maintenance Production Shop Capacity Measurement Handbook, is considered a valid method of measuring capacity and was used by each service to identify GCE capacity. Direct hours per work station were set at 1615 hours per year, as recommended by the recent report of the DDMC Capacity Analysis group.

(4) Workload product mix variations do impact calculated capacity utilization rates and change as workload changes. Accordingly, the capacities noted in the various option analysis are not considered absolute and may change with workload product variations.

(5) Future force structure adjustments will impact workload, capacity utilization and billing rates, however, they have not been considered in this study because adequate data is not available to project the anticipated changes.

(6) Personnel required to produce recommended workload transfers from one depot to another are assumed to be authorized and available from the local labor markets as needed.

(7) Each of the DoD GCE Depots' current environmental management programs reportedly operate mission functions and

related activities in compliance with state and federal regulatory requirements. Several of the depots have a program for the cleanup of hazardous waste sites with cleanup costs running into the millions. No specific cost consideration was given in this analysis to environmental considerations or long term cleanup costs.

(8) Relocation of GCE workload evaluated in each option would be implemented at the beginning of FY-93. The cost/(savings) were calculated assuming benefit for the entire first year through FY-95.

D. CORE LOGISTICS: Core logistics was viewed by each service as an important factor in the performance of their logistics maintenance responsibilities and was considered in the initial analysis of the impact of transferring GCE workloads. The unanimous position of the GCE study group was that the best economic choice would be the recommended option irrespective of core logistics considerations.

E. STUDY GROUP MEMBERSHIP:

ARMY

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F. SITE VISITS AND MEETINGS: The study group visited four service GCE facilities: Marine Corps Logistics Base, Albany, GA; Tobyhanna Army Depot, Tobyhanna, PA; Sacramento Army Depot and Sacramento Air Logistics Center, Sacramento, CA. The regular meetings of the GCE team were held at the following locations, on the dates noted.

8-10 August 1990, at the Marine Corps Depot Maintenance Activity (DMA), Albany, Georgia

28-29 August 1990; at the Tobyhanna Army Depot (TOAD), Tobyhanna, Pennsylvania

23-25 October 1990; at the Marine Corps DMA, Albany, Georgia

13-16 November 1990; at the Marine Corps DMA, Albany, Georgia

26-30 November 1990; at the Air Force Sacramento Air Logistics Center (SM-ALC), Sacramento California, and the Sacramento Army Depot (SAAD), Sacramento, California.

10-14 December 1990; at the Marine Corps DMA, Albany, Georgia.

7-10 January 1990; at the Air Force Sacramento Air Logistics Center (SM-ALC), Sacramento, California, special visit for hot mockup and ICS/Production Shutdown cost evaluation only.

16-17 January 1991; at the Marine Corps DMA, Albany Georgia.

G. DATA COLLECTED:

(1) The study team obtained and reviewed the material contained in references (a) through (v). Several data calls were made concerning GCE workload, capacity, cost, facilities, rates and related matters.

(2) The Cost Comparability Study Group chairman met with the GCE Study Group on 12 December 1990, and agreed to establish a labor rate consistent with the recommendations contained in the draft Cost Comparability Handbook, reference (r), to level the playing field. The rates recommended by the Cost Comparability Study Group in reference (v) were established after a visit to TOAD and SM-ALC. These composite rates were used to determine the production costs in the analysis of the options considered. Appendix (11) provides a summary of the data used to develop the production costs noted in Table 7.

(3) The service assessment of each option was prepared by the lead service identified for each option and is included, as written by that service, in the appendices. The GCE Study Group analysis, findings and recommendations are provided in the following paragraphs.

3. ANALYSIS:

A. INTRODUCTION:

The baseline for analysis is the organic workload data provided in Table 1, which is the funded and projected to be funded organic GCE workload to be accomplished in each service depot during the period FY-91 through FY-95. Table 2 illustrates the GCE organic, inter-Service (DMISA), and contracted workload distribution in terms of funding levels. The GCE depots involved in this study are noted in Table 3 which illustrates their respective geographic locations. Table 4 identifies the categories of GCE workload accomplished at the service depots.

B. BASELINE IDENTIFICATION:

The equipment considered as Ground Communications and Electronics Equipment which is the baseline for this study was identified in the following categories:

- o Ground Radio Communications Equipment of all types and operating frequencies
- o Ground Radar, Air Search/Traffic Control, Surveillance, IFF, Weather, Threat, etc.
- o Wire communications, Telephone, Teletype, Digital, FAX, Switchboards, Technical Control, etc.
- o Commsec/Crypto
- o Sensors, Intel, Electronic Warfare, etc.
- o Electro-Optic.
- o Navigation Aids
- o Battlefield Automation Systems, etc.

Items identified below were specifically excluded from consideration by this study group for various reasons.

- o Missiles
- o Space Based Systems
- o Shipboard Communications and Electronics
- o Aircraft electronics of all kinds
- o Operational software development and maintenance
- o Test Program set development and maintenance
- o TMDE maintenance, repair and calibration
- o Automatic Test Equipment
- o Design, development, fabrication, prototype test and evaluation, and production of electronic systems and equipment

GROUND COMMUNICATIONS AND ELECTRONICS STUDY

ORGANIC BASELINE GCE WORKLOAD

TABLE 1

(HOURS IN THOUSANDS)

DEPOT	FY 91 FUNDED WKLD	FY 91 Q1615 CAP	FY 91 CAPACITY % UTIL	FY 92 FUNDED WKLD	FY 92 Q1615 CAP	FY 92 CAPACITY % UTIL	FY 93 FUNDED WKLD	FY 93 Q1615 CAP	FY 93 CAPACITY % UTIL	FY 94 FUNDED WKLD	FY 94 Q1615 CAP	FY 94 CAPACITY % UTIL	FY 95 FUNDED WKLD	FY 95 Q1615 CAP	FY 95 CAPACITY % UTIL
SAAD	975	2,394	40.73%	1,113	2,394	46.49%	914	2,394	38.18%	914	2,394	38.18%	914	2,394	38.18%
TOAD	1,907	3,859	49.42%	2,122	3,859	54.99%	2,144	4,570	46.91%	2,144	4,570	46.91%	2,144	4,570	46.91%
SM-ALC	1,194	1,777	67.21%	1,265	1,777	71.21%	1,306	1,777	73.52%	1,282	1,777	72.16%	1,272	1,777	71.60%
USMC BAR	206	203	101.67%	170	164	103.38%	169	166	101.57%	170	166	102.17%	181	172	105.07%
USMC ALB	220	213	103.10%	247	238	103.85%	250	238	105.11%	251	240	104.67%	253	240	105.50%
MAD-PN	9	14	64.45%	9	14	65.68%	9	14	65.68%	9	23	38.31%	9	14	65.68%
MAD-JA	1	5	20.43%	1	5	20.43%	1	5	20.43%	1	5	20.43%	1	5	20.43%
MAD-NOR	4	19	20.23%	4	19	21.51%	4	19	21.51%	4	19	21.51%	4	19	21.51%
NESEC SD	16	25	62.87%	18	25	70.73%	19	25	74.66%	21	25	82.52%	23	25	90.38%
NESEC POR	2	4	51.08%	2	4	51.08%	2	4	51.08%	2	4	51.08%	2	4	51.08%
TOTALS	4,534	8,512	53.26%	4,951	8,498	58.26%	4,818	9,211	52.31%	4,798	9,223	52.02%	4,803	9,219	52.10%

TOADS

Current

FY 1435

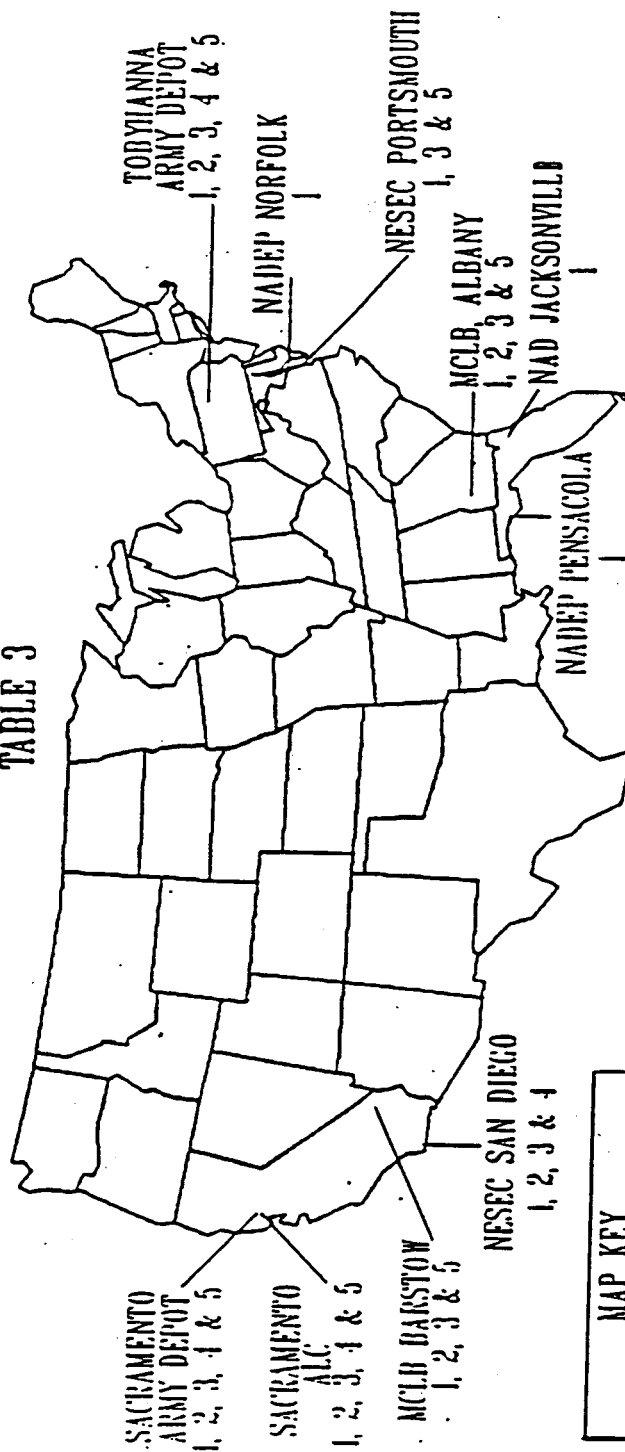
FY 94 + FY 95

TABLE 2 - FUNDED GCE WORKLOAD DISTRIBUTION

CATEGORY	FY 91		FY 92		FY 93		FY 94		FY 95		TOTALS	
	% OF X	\$000,000	% OF X	\$000,000	% OF X	\$000,000	% OF X	\$000,000	% OF X	\$000,000	% OF X	\$000,000
Organic												
ARMY	58.0%	\$123.9	55.2%	\$141.8	54.7%	\$130.0	54.7%	\$130.0	54.7%	\$130.0	55.4%	\$655.7
NAVY	34.6%	\$0.7	34.7%	\$0.6	35.9%	\$0.6	29.6%	\$0.7	33.4%	\$0.7	33.5%	\$3.2
AIR FORCE	62.1%	\$63.3	63.5%	\$66.6	63.9%	\$68.6	64.2%	\$67.3	64.8%	\$67.1	63.7%	\$332.9
USMC	74.0%	\$18.1	74.0%	\$17.6	74.0%	\$17.7	74.0%	\$17.8	74.0%	\$18.3	74.0%	\$89.5
TOTAL		\$206.1		\$226.6		\$216.9		\$215.7		\$216.1		\$1,081.5
CAT % OF G TOTAL												
		60.2%		58.5%		58.5%		58.5%		58.7%		58.9%
Contract												
ARMY	37.8%	\$80.7	40.9%	\$105.1	40.7%	\$96.7	40.7%	\$96.7	40.7%	\$96.7	40.2%	\$475.9
NAVY	8.6%	\$0.2	9.6%	\$0.2	9.9%	\$0.2	8.0%	\$0.2	8.9%	\$0.2	8.9%	\$0.9
AIR FORCE	34.9%	\$35.6	33.0%	\$34.6	32.4%	\$34.7	31.9%	\$33.5	31.6%	\$32.7	32.7%	\$171.1
USMC	16.0%	\$3.9	16.0%	\$3.8	16.0%	\$3.8	16.0%	\$3.8	16.0%	\$4.0	16.0%	\$19.4
TOTAL		\$120.4		\$143.6		\$135.4		\$134.2		\$133.6		\$667.2
CAT % OF G TOTAL												
		35.2%		37.1%		36.5%		36.4%		36.3%		36.3%
Inter-service												
ARMY	4.2%	\$9.0	3.9%	\$10.0	4.6%	\$11.0	4.6%	\$11.0	4.6%	\$11.0	4.4%	\$52.0
NAVY	56.7%	\$1.1	55.7%	\$1.0	54.2%	\$1.0	62.4%	\$1.4	57.7%	\$1.2	57.6%	\$5.6
AIR FORCE	3.0%	\$3.1	3.5%	\$3.7	3.7%	\$4.0	3.8%	\$4.0	3.5%	\$3.6	3.5%	\$18.4
USMC	10.0%	\$2.5	10.0%	\$2.4	10.0%	\$2.4	10.0%	\$2.4	10.0%	\$2.5	10.0%	\$12.1
TOTAL		\$15.6		\$17.1		\$18.4		\$18.8		\$18.3		\$88.1
CAT % OF G TOTAL												
		4.6%		4.4%		5.0%		5.1%		5.0%		4.8%
SERVICE TOTALS												
ARMY		\$213.6		\$256.9		\$237.7		\$237.7		\$237.7		\$1,183.6
NAVY		\$1.9		\$1.8		\$1.8		\$2.2		\$2.0		\$9.7
AIR FORCE		\$102.0		\$104.9		\$107.4		\$104.7		\$103.5		\$522.5
USMC		\$24.5		\$23.8		\$23.9		\$24.0		\$24.8		\$121.0
GRAND TOTALS		\$342.0		\$387.3		\$370.7		\$368.7		\$368.0		\$1,836.8

X = TOTAL INDIVIDUAL SERVICE DOLLARS FOR ALL CATEGORIES OF GCE SUPPORT

TABLE 3



MAP KEY	
1 -	RADIO
2 -	RADAR
3 -	WIRE COMMUNICATIONS
4 -	CONSEC/CRYPTO
5 -	OTHER

BASELINE GCE DEPOT SUPPORT FACILITIES

TABLE 4

WORKLOAD CATEGORY	SAAD *AD	TOAD *TB	SH-ALC *FM	USMC ALB *BA	USMC BAR *BB	WAD PN *PN	WAD JA *JA	WAD MOR *MF	NESEC SD *HS	NESEC POR *EP
RADIO:										
LOW FREQUENCY (LF)	X	X	X							X
HIGH FREQUENCY (HF)	X	X	X	X			X			X
VERY HIGH FREQ (VHF)	X	X	X	X	X				X	X
ULTRA HIGH FREQ (UHF)	X	X	X			X	X	X	X	X
MICROWAVE	X	X	X	X	X					
RADAR:										
AIR TRAFFIC CONTROL	X	X	X	X	X					
SURVEILLANCE	X	X	X	X	X					
IFF	X	X	X	X	X					
WEATHER	X	X	X							
THREAT	X	X	X	X	X					
WIRE COMMUNICATIONS:										
FAX	X	X	X							
TELEPHONE	X	X	X	X	X					
TELETYPE (TTY)	X	X	X	X	X					X
SWITCHBOARDS	X	X	X	X	X					
MULTIPLY	X	X	X	X	X					
OPERATIONS CENTRAL	X	X	X	X	X					X
TECHNICAL OPERATIONS	X	X	X							
INTERCOMMUNICATIONS	X	X	X	X	X					
OTHER:										
COMHSEC/CRYPTO	X	X	X						X	
SENSORS	X	X	X	X	X					X
INTEL/FEW	X	X	X		X					
ELECTRO-OPTICS **	X		X	X	X					
BAT FLD AUTO SYS	X	X	X	X	X					
NAVIGATION AIDS	X	X	X							

* JOMAG DEPOT CODE

** LIMITED F-0 CAPABILITY EXISTS AT ANNISTON ARMY DEPOT

During the GCE Study several weapon systems were identified whose description and purpose were not the same in the Air Force and the Army. As an example the Air Force categorization of Space Systems was not the same as the Army's in every case. On the surface, the categories described above appear clear and understandable. In practice, however, some equipment types may not have been classified the same in every case. The group felt it necessary to address this issue, but also agreed it would not in any way alter the outcome of the study.

C. INTER-SERVICE WORKLOAD: Current GCE Depot Maintenance Inter-service Support Agreements (DMISAs) data was collected and analyzed. Table 5 reflects GCE inter-servicing activity between the services. The quantity of NSN'S is provided to illustrate the extent to which GCE inter-servicing is currently accomplished. The GCE agent/maintenance manager and source of repair are identified in summary form.

The inter-serviced workload average values for fiscal years 91 through 95 for the GCE workload are summarized below to illustrate several opportunities available.

SERVICE	% INTER-SERVICED	\$'S INTER-SERVICED
Army	4.39%	\$52,000,000
Navy	57.60%	\$5,583,000
Air Force	3.53%	\$18,427,000
Marine Corps	10.00%	\$12,101,000

D. ORGANIC WORKLOAD: Table 4 provides a view of the basic GCE categories of organic workload accomplished in the service depot maintenance activities.

E. FUNDING DISTRIBUTION: Table 2 illustrates each service's depot maintenance GCE funding distribution by sources of maintenance. Table 2 also provides an overview of the total DoD cost of each category of workload for the period FY-91 through FY-95 and the percent of total dollars expended.

F. WORKLOAD ANALYSIS: The first step in analyzing communication and electronics depot level maintenance was to evaluate baseline organic workload present and planned. Table 1 contains the Army, Navy, Air Force, and Marine Corps funded and projected to be funded organic GCE workload for fiscal years 91 through 95. Inter-service and contracted out requirements are identified in Table 2. Analysis of the data in both tables indicates that a capacity utilization problem exists in several depots and that opportunities do exist to contract out or inter-service non-core portions of the organic GCE workload.

TABLE 5

GROUND COMMUNICATIONS AND ELECTRONICS STUDY
 DEPOT MAINTENANCE INTER-SERVICE SUPPORT AGREEMENTS

OUTGOING GCE DMISA WORKLOAD

WEAPONS SYSTEM (CATEGORY)	SERVICE NSN'S SUPPORTED				AGENT MAINTENANCE MANAGER (SERVICE)	SOURCE OF REPAIR (DEPOT)
	ARMY	USAF	USMC	NAVY		
RADIO	76	-	0	3	AIR FORCE	SM-ALC
	-	15	0	280	ARMY	SAAD
	28	6	-	0	USMC	USMC, ALB
	0	4	0	-	NAVY	NESEC, SD
RADAR	21	-	0	0	AIR FORCE	SM-ALC
	-	10	5	0	ARMY	SAAD, TOAD
	0	2	-	0	USMC	USMC, ALB/BAR
	0	6	0	-	NAVY	NESEC, SD
WIRE COMM	14	-	0	0	AIR FORCE	SM-ALC
	-	9	6	40	ARMY	TOAD
	33	0	-	0	USMC	USMC, ALB
	0	2	5	-	NAVY	NESEC, SD
COMMSEC/ CRYPTO	0	-	0	0	AIR FORCE	
	-	0	0	0	ARMY	
	0	0	-	0	USMC	
	0	0	*	-	NAVY	
OTHER	15	-	0	0	AIR FORCE	SM-ALC
	-	7	206	0	ARMY	SAAD
	20	0	-	0	USMC	USMC, BAR
	0	0	0	-	NAVY	
TOT NSN'S	207	61	222	323		

* Marine Corps COMMSEC/CRYPTO is supported by the Navy, but is not covered by a DMISA.

G. MAINTENANCE AND SUPPORT FACILITIES:

(1) An assessment of Ground Communications and Electronics Depot Facilities was conducted following site visits. The study chairman and most team members participated in site surveys.

(2) The Army's ground communications and electronics maintenance depots are located in Sacramento, California and Tobyhanna, Pennsylvania. Although the Army currently maintains a west coast and an east coast facility, the maintenance workload is not assigned based on geographical location or redundant sources of repair. Assignments are made by commodity groupings and technologies. TOAD accomplishes 66% of the Army's GCE workload and SAAD accomplishes the remaining 34%. As an example, TOAD is responsible for Army Satellite Communications equipment whereas, SAAD is the prime depot for Electro-Optical equipment. Both depots provide quality communications and electronics maintenance support for the Army, inter-service, and foreign military sales customers. TOAD and SAAD have a large skill base of various electronic disciplines needed to support the technologies maintained at each depot.

(3) The Navy's ground communications and electronics maintenance depots are located in San Diego, California, Portsmouth Virginia, NADEP'S Norfolk, Virginia., Jacksonville, and Pensacola, Florida. The depots mission and functions are supported by facilities that are equipped to repair and rebuild the full range of Navy end item and component repair requirements, including printed circuit cards, modules and assemblies from electronic warfare systems, teletype, radiac, crypto, and communications and electronic systems. The depots are also involved in the fabrication and manufacturing of electronic assemblies and provide professional engineering management and program execution support to various Navy systems.

(4) The Air Force's Sacramento ALC is the sole Air Force depot for GCE. SM-ALC was developed with the flexibility to meet both GCE requirements and aircraft electronics requirements for printed circuit boards, automatic test equipment, software and other support requirements. This large modern depot has extensive ground radar support equipment and facilities complete with total system mock-ups to support maintenance and ICP management functions. Specialized capabilities include a printed circuit emulation facility, a fiber optics laboratory, a neutron radiography facility, extensive modern environmentally controlled resources, and a live target radar range.

(5) Depot Maintenance Activity (DMA), Marine Corps Logistics Base, Albany, Georgia and Depot Maintenance Activity (DMA), Marine Corps Logistics Base, Barstow, California are multi-commodity maintenance centers with modern mission oriented GCE maintenance capability tailored to meet the ground combat equipment maintenance requirements of the Marine Corps' expeditionary combined arms forces. Shops performing GCE workload are modern, well equipped work centers designed primarily to support radio, wire communications, and radar equipment essential to the amphibious warfare mission of the Marine Corps. Specialized capabilities include extensive automatic test equipment, clean rooms, indoor and outdoor laser test facilities and an in-depth maintenance engineering staff for automatic test equipment and weapon system maintenance development.

H. GCE SKILL DISTRIBUTION:

Shown on Table 6 is the FY 1991 mix of repair skills and number of direct labor personnel employed at each depot facility. Generally speaking, all locations have been successful in acquiring the required number of skilled personnel from local labor pools. Consensus is that availability of skilled people is not a variable that impacts proposed consolidations.

I. TECHNICAL SUPPORT:

The basic GCE technical capabilities of the four depots visited are considered essentially equal and fully supportive of the basic GCE rebuild missions assigned. There are significant differences between the depots, mainly in unrelated non GCE high technology areas, which may be of significant benefit in other applications.

J. OPTIONS CONSIDERED:

OPTION 1. Move Sacramento Army Depot (SAAD) GCE workload (FY-93 = 813,352 hours) to Tobyhanna Army Depot (TOAD) and the GCE Electro-Optics workload (FY-93 = 100,648 hours) to Anniston Army Depot (ANAD). Appendix (1) illustrates the impact of workload transferred from SAAD to TOAD and ANAD. Appendix (2) provides a detailed assessment of this option from the Army's perspective.

OPTION 2. Move Sacramento Army Depot (SAAD) GCE workload (FY-93 including electro-optics = 914,000 hours) to Sacramento Air Logistics Center (SM-ALC). Appendix (3) illustrates the capacity utilization impact of moving SAAD workload to SM-ALC. Appendix (4) provides a detailed assessment of this option from the Air Force's perspective.

GROUND COMMUNICATIONS ELECTRONICS STUDY

GCE DEPOT BASELINE SKILL DISTRIBUTION

TABLE 6

SKILLS FY-91-92	ARMY SAAD	ARMY AIR TOAD	FORCE SH-ALC	USMC ALBANY	USMC BARSTOW	NAVY MAD-PH	NAVY MAD-JA	NAVY MAD-NOR	NAVY NESEC-SD	NAVY NESEC-POR	TOTAL DOD
RADIO MECHANICS/INSPECTORS	154	429	74	22	22	7	6	4	9	22	749
RADAR MECHANICS/INSPECTORS	101	105	473	21	20						720
WIRE COMMUNICATIONS MECHANICS/INSPECTORS	106	115	46	20	15					9	311
COMMSEC/CRYPTO MECHANICS/INSPECTORS	171	151	9	0	0				9		340
OTHER MECHANICS/INSPECTORS	112	168	117	53	52						502
DOD TOTAL GCE SKILLS	644	968	719	116	109	7	6	4	18	31	2622
DEPOT % OF TOTAL DOD	24.6%	36.9%	27.4%	4.4%	4.2%	0.3%	0.2%	0.2%	0.7%	1.2%	100.0%

OPTION 3. Move Sacramento Army Depot (SAAD) GCE workload (FY-93 = 813,352 hours) and Sacramento Air Logistics Center (SM-ALC) total GCE workload (FY-93 = 1,306,000 hours) to Tobyhanna Army Depot (TOAD) with Army Electro-Optics workload (FY-93 = 100,648 hours) going to ANAD. Appendix (5) illustrates the impact of GCE workload transferred from SAAD and SM-ALC to TOAD and ANAD. Appendix (6) and (7) provide detailed assessments of this option from the individual perspective of the Army and the Air Force.

OPTION 4. Move Sacramento Air Logistics Center GCE workload (FY-93 = 1,306,000 hours) to other Air Force Air Logistics Centers. Appendix (8) illustrates only the transfer, within the Air Force, of the SM-ALC GCE workload to the other Air Force ALC'S. Appendix (9) provides a detailed assessment by the Air Force of this option.

OPTION 5. Appendix (10) provides an analysis of the opportunities available for potential savings through competition on above core workloads.

K. OPTION EVALUATION DATA:

(1) In development of the options 1 through 4, the following factors were addressed in the assessment of each option:

- (a) Assumptions peculiar to that option
- (b) Cost/Savings including:
 - o Relocation of production equipment
 - o Personnel redistribution
 - o Capability/Development
 - o Transportation change
 - o Inventory
 - o New Personnel
 - o Change in production cost
 - o Cost savings on MILCON, etc.
 - o Base Operation Support (BOS) change
- (c) Pros/Cons including:
 - o Workload capacity impact
 - o Mob/surge/core/readiness/impact

(2) Each service affected by the movement of workload, in an option, developed an assessment of that option from their perspective following the format described above. Each assessment is included in the appendices.

(3) Workload analyzed also included sole-source private sector contracts for potential savings through relocation to organic depots, organic depot workload to be competed, and the economies to be realized through movement of workload from one DoD depot to another to improve capacity utilization and inter-servicing objectives. Data available did not support meaningful analysis or results in the area of immediate improvement in inter-servicing or competition in private sector workload changes. The sheer magnitude of the data plus the acknowledged inconsistencies and errors prevented any worthwhile progress. Option 5, however, does provide the basis for significant savings by all services through systematic competition of the GCE workload.

L. OPTION ANALYSIS:

(1) Analysis and verification of individual cost factors were accomplished to identify the option(s) that would yield the best savings. FY-93 was selected as the beginning year for options 1 through 4 to allow sufficient time to implement the options recommended. FY-92 was selected as the beginning year for option 5 to support the savings targets identified in reference (m).

(2) Production cost analysis was identified as the most significant element and was initially to be determined by workload hours times the published industrial fund rate for the activity. It was determined that over \$21 per hour rate difference existed between TOAD vs. SM-ALC and SAAD if the current actual billing rates were used.

(3) The Air Force took strong exception to this approach preferring to use "unit sales prices", a position well documented in the references. A compromise was eventually agreed to, wherein, the Cost Comparability Study Group would establish a "verified rate" to be used in lieu of the established industrial fund rate structure currently in effect. The GCE study team unanimously agreed to this approach. The verified rate, while not perfect, includes all of the activity operating costs, and is a valid measure of the overall efficiency of operations at a given activity.

(4) Several factors in the evaluation required more in-depth analysis. The Air Force, in Option 3, Appendix (6), initially identified a \$53.8 million cost to replicate the "hot mock-ups" used at SM-ALC that are not available for movement to TOAD, but would be required to support production of Air Force GCE workload. On-site evaluation of this equipment by a special GCE evaluation team (Marine Corps and Army) to validate the requirements and identify alternative methods of testing verified that \$46.130 million of the hot mock-up requirements identified were valid requirements for Inventory Control Point (ICP) use and production test and inspection of end items and components rebuilt or repaired. Also, the team verified that alternate test methods were not practical for the equipment tested on the mock-

ups evaluated. It should be noted that many additional mock-ups are used by SM-ALC and may well fall in this same category and if evaluated could further increase the mock-up costs identified.

(5) Another factor that required special evaluation was the Air Force figure of \$35.2 million for interim contractor support (ICS), during the transition period when GCE workload is shifted from SM-ALC to TOAD. The data provided to identify the requirements and illustrate the need did not fully support the cost indicated. Initially, the requirement was for contractor support of selected GCE components during the transition period as workload is shifted from SM-ALC to TOAD, that plan was eventually adjusted to include procurement of additional spares to support customer requirements during the transition period. Evaluation of this requirement by the special team described above verified that \$30.2 million of production costs identified, while somewhat subjective, were not unreasonable in view of the age, diversity and complexity of the equipment covered by the study.

(6) Two factors drove the initial analysis of the options 1 through 4. First was the wide variance in material costs between SM-ALC and TOAD. Second was the \$89 million first year cost the Air Force identified for hot mockups and ICS. Four spreadsheets were developed to understand the impact of the range of the variables. As data was refined, it became apparent that the most meaningful analysis could be accomplished by comparison of the production costs without material because of product mix variations which skewed the data. ANAD'S material rate of \$25.97 per hour would not compare well with TOAD'S material rate of \$5.51 or SM-ALC'S of \$10.38. Table 7 provides the final cost/(savings) analysis of the four options evaluated that involve the movement of workload between depots. Table 7 illustrates what is considered the most representative of the real cost/(savings) and was the basis for the recommendations in this report.

(7) The analysis supporting the strategy presented in option 5 was centered on the savings targets identified in reference (m) for competition and inter-servicing by the Joint Services. The savings identified in the option are based on the Service Business offices systematically competing the proportionate share of the GCE workload that will achieve the targets identified. It should be noted that this option included the means to fund the service and Joint Business offices to cover the "Cost of Competition" required to implement this option.

M. CONCLUSIONS AND RECOMMENDATIONS:

RECOMMENDED WORKLOAD TRANSFER:

Evaluation of the data developed indicates that Option 1, the transfer of the GCE workload from SAAD to TOAD, is the most reasonable and prudent business decision for the DoD to make and will result in a \$40.959 million reduction in the cost of

operations for depot level maintenance of Army GCE requirements. TOAD is considered fully capable to assume the additional workload, with only minor facility and equipment adjustments necessary, and should provide the full level of GCE support required. The 100,648 hours of Electro-Optic workload to be transferred to ANAD can be accomplished after development of special Electro-Optic facilities required. Movement of the Electro-Optic workload will require coordination with the Missile Electro-Optic workload, which is approximately three times larger than the GCE Electro-Optic workload.

COST SAVINGS: Selection of option 1 offers a cost savings to the government of \$40.959 million over the period FY-93 to FY-95.

INTER-SERVICING AND COMPETITION: Evaluation of the potential for improvement in inter-service workload transfers and public/private competition indicates that significant opportunities exist through application of the principals established in Option 5. It is recommended that the plan contained in Option 5, which distributes the savings identified in reference (m), the Joint Service Memorandum for the Assistant Secretary of Defense, be approved for implementation. The plan will save over \$59 million dollars on GCE workload scheduled during the period FY-92 to FY-95 if fully implemented. Action to implement this option should begin in FY-91 and will require the development of a detailed business plan by each service. Development of the necessary technical data to support full and meaningful competition will require a large scale effort and should begin immediately. There was unanimous agreement by the study group membership that candidates, by specific item identification, for competition and interservicing could not be provided at this time, but would be developed by the service business offices when core statements are completed and procedures are in place. Schedules, priorities, and plans should be built around data supportable competitions. Tables 1 through 4 of Appendix (10) provide a breakout by year. Table 5 of appendix (10) provides a summary of the total savings for Option 5.

COST SAVINGS: Selection of option 5 offers a cost savings to the government of \$59.466 million over the period FY-92 to FY-95.

CAPACITY TRANSFER AND DIVESTITURE:

(1) The excess capacity at SAAD, available after transfer of the GCE and Electro-Optics workload, can be converted to other purposes or sold to the private sector. The estimated annual savings to be realized from the vacated facilities can not be estimated within the bounds of the GCE Study. No cost savings have been included in this analysis for the vacated space at SAAD. Obviously, many options exist concerning its future use including layaway, conversion to storage facilities, or eventual sale to the private sector.

(2) Layaway of excess capacity to achieve improved utilization and cost of ownership savings are possible at several depots. Implementation of Option 1 will result in a change in capacity utilization from 46% to 64% at TOAD. SM-ALC utilization will remain at 67% to 71% throughout the period of the study. Layaway at both TOAD and SM-ALC is possible but will require extensive rearrangement of facilities at some cost. Layaway at both depots, however, will save money and should be accomplished. . Recommend that layaway of excess capacity be directed by each service to achieve at least 90% capacity utilization within the next two years. It is further recommended that a cost savings report be required to keep track of the savings generated by this activity. It is estimated that, at \$1500 per work station, the potential exists to save up to \$1.3 million per year, if the excess work stations identified to achieve 90%-capacity utilization at TOAD and SM-ALC, were fully retired in FY-93 as described below:

DEPOT	TOAD	SM-ALC
CAPACITY (HRS)	4,570,000	1,777,000
90% OF TOTAL CAPACITY	4,113,000	1,599,000
WORKLOAD	2,957,000	1,306,000
CAPACITY AVAILABLE FOR LAYAWAY	1,156,000	293,300
WORK STATIONS @ 1615 HRS EA.	716	181

Note: no estimate of cost to layaway is included

GROUND COMMUNICATIONS ELECTRONIC STUDY
OPTION COST/(SAVINGS) ANALYSIS

TABLE 7

(\$000,000)

	<---SAAD TO TOAD-->			<---SAAD TO SH-ALC-->			<---SAAD AND SH-ALC TO TOAD & ANAD-->			<---SH-ALC TO OTHER ALC'S-->		
COST/(SAVINGS) ELEMENTS	OPTION 1 ARMY	OPTION 1 ALLOW	OPTION 2 AIR FORCE	OPTION 2 ALLOW	OPTION 3 AIR FORCE	OPTION 3 AF ALLOW	OPTION 3 ARMY	OPTION 3 A ALLOW	OPTION 3 SUM A+AF	OPTION 3 SUM ALLOW	OPTION 4 AIR FORCE	OPTION 4 ALLOW
RELOCATION OF PROD EQUIP	\$3.888	\$3.888	\$3.032	\$3.032	\$3.600	\$3.600	\$3.888	\$3.888	\$7.488	\$7.488	\$4.000	\$4.000
PERSONNEL REDISTRIBUTION	\$15.735	\$15.735	\$2.560	\$2.560	\$14.600	\$14.600	\$15.735	\$15.735	\$30.335	\$30.335	\$19.700	\$19.700
CAPACITY DEV (W/O ICS)	\$4.530	\$2.664 NOTE 11*	(\$2.568)	\$1.930 NOTE 7*	\$8.700	\$8.700	\$4.530	\$2.664 NOTE 11*	\$13.230	\$11.364	\$8.700	\$8.700
"HOT MOCKUP"	\$0.000	\$0.000	\$0.000	\$0.000	\$46.130	\$46.130	\$0.000	\$0.000	\$46.130	\$46.130	\$0.000	\$3.000
TRANSPORTATION CHANGE	(\$9.126)	(\$9.126)	\$0.000	\$0.00	\$1.000	\$1.000	(\$9.126)	(\$9.126)	(\$8.126)	(\$8.126)	\$0.000	\$0.000
INVENTORY ADJUSTMENTS	\$0.577	\$0.577	\$0.081	\$0.081	\$1.700	\$1.700	\$0.577	\$0.577	\$2.277	\$2.277	\$1.700	\$1.700
NEW PERSONNEL	\$1.000	\$1.000	\$0.027	\$0.250	\$10.400	\$10.400	\$1.000	\$1.000	\$11.400	\$11.400	\$10.500	\$10.500
PROD SHUTDOWN	\$1.500	\$1.500	\$0.000	\$1.500	\$30.200	\$30.200	\$1.500	\$1.500	\$36.700	\$35.200	\$30.200	NOTE 11v \$30.200
PRODUCTION COST CHANGES	(\$107.04)	(\$51.193)	(\$18.489)	(\$23.910)	(\$7.800)	(\$42.902)	(\$107.040)	(\$51.194)	(\$114.840)	(\$94.016)	(\$4.500)	(\$4.500)
SEE NOTE 1	NOTE 5*	NOTE 6v	NOTE 2*	NOTE 5*	NOTE 5*	NOTE 6v	NOTE 5*	NOTE 5*	NOTE 6v	NOTE 6v	NOTE 6v	NOTE 6v
16% IND	\$0.000	(\$2.104)	\$0.000	(\$2.104)	\$0.000	(\$2.577)	\$0.000	(\$2.104)	\$0.000	(\$4.681)	(\$4.900)	(\$2.204)
MILCON	(\$3.900)	(\$3.900)	(\$3.900)	(\$3.900)	\$0.000	\$0.000	(\$3.900)	(\$3.900)	(\$3.900)	(\$3.900)	\$0.000	\$0.000
BASE OPERATIONS SUPPORT	(\$13.200)	\$0.000	(\$13.20)	\$0.000	\$0.000	\$0.000	(\$13.200)	\$0.000	(\$13.200)	\$0.000	\$0.000	\$0.000
NET COST/ (SAVINGS)	(\$106.036)	(\$40.959)	(\$32.457)	(\$20.561)	\$108.530	\$70.851	(\$106.036)	(\$40.960)	\$7.494	\$33.471	\$65.400	\$68.096

NOTE 00* = NOTE REFERS TO ITEM ABOVE. NOTE 00V = NOTE REFERS TO ITEM BELOW

NOTES RELATIVE TO TABLE 7

NOTE 1: ADJUSTMENTS TO PRODUCTION COST WERE DETERMINED FROM THE DATA CONTAINED IN APPENDIX (11)

NOTE 2: DATA ADJUSTED PER AIR FORCE FAX RECEIVED 12/31/90

NOTE 3: ARMY SHOWED A THREE YEAR SAVING OF 13.2 MILLION FROM CANCELLATION OF A PAN AM SERVICES CONTRACT WHICH IS COVERED IN THE INDUSTRIAL FUND RATE STRUCTURE AND SHOULD NOT BE COUNTED TWICE.

NOTE 4: AIR FORCE SHOWED \$13.2 MILLION SAVINGS BECAUSE OF PAN AM WORLD SERVICES CONTRACT CANCELLATION AT SAAD. THIS COST IS INCLUDED IN SAAD RATE STRUCTURE AND SHOULD NOT BE COUNTED TWICE.

NOTE 5: PRODUCTION COST HAVE BEEN ADJUSTED TO REFLECT THE RATES DEVELOPED BY THE CC GROUP. APPENDIX (11) CONTAINS THE RATES USED AND THE BASIS FOR THE ADJUSTMENT NOTED.

NOTE 6: INDIRECT PERSONNEL REDUCTIONS WERE INCORRECTLY CALCULATED. SHOULD BE 16% REDUCTION IN INDIRECT PERSONNEL WHO SUPPORT PRODUCTION OF THE WORKLOAD TRANSFERRED.

NOTE 7: AF CLAIM FOR CREDIT OF \$4.5 MILLION CONSTRUCTION PROJECT AT ANAD IS NOT VALID. SAVINGS SHOULD BE CALCULATED COMPARED TO OPERATIONS AT SAAD.

NOTE 8: AF COST UNDERSTATED. ALL SAAD PERSONNEL WILL NOT AUTOMATICALLY TRANSFER TO SH-ALC. SOME PRODUCTIVITY LAG MUST BE ADDED, RECRUITMENT COST MUST EXCEED ZERO, ESTIMATED TOTAL COST COULD EXCEED \$250,000.

NOTE 9: NO ICS/PRODUCTION SHUTDOWN COSTS WERE SHOWN. ELECTRO-OPTIC REQUIREMENTS ARE NEW FUNCTION, SHOULD BE AT LEAST THE SAME AS THE TRANSFER COSTS TO ANAD IN OPTION 1.

NOTE 10: ICS/PRODUCTION SHUTDOWN COSTS, VALID FOR OPTION 3 SHOULD ALSO APPLY TO THIS OPTION.

NOTE 11: CAPACITY DEVELOPMENT COSTS WERE ADJUSTED TO EXCLUDE THE MISSILE PORTION OF ELECTRO OPTICS FACILITY DEVELOPMENT COSTS AT ANAD.

WEAPONS SYSTEM MATRIX: Table 8 provides the data desired in the Weapons System Matrix format to the extent gross data can be compressed into a single table.

SORCROW

NEW NO.

[illegible]

OPTION 1 WEAPON SYSTEM MATRIX

FIELD	EXPLANATION
A	INCLUDES ALL GCE WORK AT SAAD
B	ARMY IS PRIMARY USER/LEAD SERVICE
C	UNDETERMINED, SERVICE CORE POSITIONS IN STATE OF FLUX
D	NOT AVAILABLE IN GCE STUDY DATA
E	SAAD(AD) IS CURRENT SOR TOAD(TB) IS NEW SOR FOR GCE. OTHER THAN E/O ANAD(AI) IS NEW SOR FOR E/O
F	914,000 M/H IS SAAD W/L FOR FY-93-95 813,352 M/H TRANSFERS TO TOAD 100,648 M/H TRANSFERS TO ANAD
G	914,000 M/H X \$54.27 (SAAD RATE W/W MAT) = \$49.603M 813,000 M/H X \$34.60 (TOAD RATE W/O MAT.) = \$28.142M 100,648 M/H X \$43.68 (ANAD RATE W/O MAT.) = \$4.396M
H	CONSOLIDATION DECISION IMPLEMENTED IN FY-93
I	SERVICE INCURRING COSTS AND SAVINGS IS ARMY(A) COST OF ACTION INCLUDES ALL COST OF IMPLEMENTING ACTION IN FY. GROSS SAVINGS INCLUDES ALL SAVINGS RESULTING FROM ACTION IN FY. NET SAVINGS = SAVINGS MINUS COSTS ON AN FY BASIS
J	SOR TO EXPERIENCE WORKLOAD OR CAPACITY CHANGE
K	WORKLOAD CHANGE (ENTREES ARE NOT ADDITIVE FROM FY TO FY)
L	CAPACITY CHANGE (ENTREES ARE NOT ADDITIVE FROM FY TO FY)

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

July 1, 1944

NOTE: 1. 1-Y-2-3, CHILLATIVE;

ΔΑΥΝ : ΝΑΥΤ.

TABLE I. $1Y-9J-9J'$ Coupling (eV)

ATTENTION, ALL INDIVIDUALS

NOTE: 1 : 1992-93, CUMULATIVE:

OPTION 5 WEAPON SYSTEM MATRIX

FIELD	EXPLANATION
A	VARIOUS GCE ITEMS
B	IDENTIFIES PRIMARY USER/LEAD SERVICE
C	ALL GCE WORK NOT PART OF CORE
D	NOT AVAILABLE IN GCE STUDY DATA
E	VARIOUS SOR'S
F	NOT AVAILABLE - OPTION IS BASE ON \$ VICE MAN-HOURS
G	CUMULATIVE BUSINESS BASE FOR FY'S PROJECTED IN FIELD I. EXAMPLE: A \$1 MILLION COMPETITION THAT RESULTED IN A SOR FOR THREE YEARS WOULD BE COUNTED AS \$3 MILLION IN THE BUSINESS BASE.
H	I/S - SOR DETERMINED THROUGH PUBLIC/PUBLIC COMPETITION, KEY ACTION IS PUBLIC/PUBLIC COMPETITION OCCURS, NOT THAT EQUIPMENT IS NECESSARILY INTER-SERVICED. P/PC - SOR DETERMINED THROUGH PUBLIC/PRIVATE OR PRIVATE/PRIVATE COMPETITION. KEY ACTION IS COMPETITION OCCURS THAT INVOLVES PRIVATE SECTOR, NOT THAT EQUIPMENT IS NECESSARILY TRANSITIONED TO PRIVATE OR PUBLIC SECTOR.
I	COST OF ACTION = FUNDS ALLOCATED FROM GROSS SAVINGS TO COVER THE COST OF COMPETITION. COST OF ACTION OCCURS ANNUALLY REGARDLESS OF LENGTH OF CONTRACT RESULTING FROM COMPETITION. EXAMPLE: A \$1 MILLION COMPETITION THAT INVOLVED THE PRIVATE SECTOR AND RESULTED IN A THREE YEAR SOR DETERMINATION WOULD GENERATE THE FOLLOWING: * TOTAL BUSINESS BASE = \$3 MILLION (\$1 MILLION X 3 YEAR CONTRACT) * GROSS SAVINGS = \$0.6 MILLION (\$1 MILLION X 20% X 3 YEAR CONTRACT) OR \$0.2 MILLION/YEAR * COST OF ACTION = \$0.12 MILLION (\$1 MILLION X 4% X 3 YEAR CONTRACT) OR \$0.04 MILLION/YEAR * NET SAVINGS = \$0.48 MILLION (GROSS SAVINGS MINUS COST OF ACTION) OR \$0.16 MILLION/YEAR GROSS SAVINGS AND NET SAVINGS AS DEFINED ABOVE.
J, K, L	NOT AVAILABLE UNTIL COMPETITION OCCURS.

GROUND COMMUNICATIONS AND ELECTRONICS STUDY

OPTION 1 MOVE SAAD GCE WORKLOAD TO TOAD

(SAAD ELECTRO-OPTICS TO ANAD)

APPENDIX (1)

(HOURS IN THOUSANDS)

DEPOT	FY 91 FUNDED WKLD	FY 91 @1615 CAP	FY 91 CAPACITY % UTIL	FY 92 FUNDED WKLD	FY 92 @1615 CAP	FY 92 CAPACITY % UTIL	FY 93 FUNDED WKLD	FY 93 @1615 CAP	FY 93 CAPACITY % UTIL	FY 94 FUNDED WKLD	FY 94 @1615 CAP	FY 94 CAPACITY % UTIL	FY 95 FUNDED WKLD	FY 95 @1615 CAP	FY 95 CAPACITY % UTIL
SAAD	975	2,394	40.73X	1,113	2,394	46.49X									
TOAD	1,907	3,859	49.42X	2,122	3,859	54.99X	2,957	4,570	64.71X	2,957	4,570	64.71X	2,957	4,570	64.71X
SH-ALC	1,194	1,777	67.21X	1,265	1,777	71.21X	1,306	1,777	73.52X	1,282	1,777	72.16X	1,272	1,777	71.60X
USMC BAR	206	203	101.67X	170	164	103.38X	169	166	101.57X	170	166	102.17X	181	172	105.07X
USMC ALB	220	213	103.10X	247	238	103.85X	250	238	105.11X	251	240	104.67X	253	240	105.50X
HAD-PH	9	14	64.45X	9	14	65.68X	9	14	65.68X	9	23	38.31X	9	14	65.68X
HAD-JA	1	5	20.43X	1	5	20.43X	1	5	20.43X	1	5	20.43X	1	5	20.43X
HAD-NOR	4	19	20.23X	4	19	21.51X	4	19	21.51X	4	19	21.51X	4	19	21.51X
NESEC SD	16	25	62.87X	18	25	70.73X	19	25	74.66X	21	25	82.52X	23	25	90.38X
NESEC POR	2	4	51.08X	2	4	51.08X	2	4	51.08X	2	4	51.08X	2	4	51.08X
ANAD							101	101	100.00X	101	101	100.00X	101	101	100.00X
TOTALS	4,534	8,512	53.26X	4,951	8,498	58.26X	4,818	6,918	69.64X	4,798	6,930	69.24X	4,803	6,926	69.35X

APPENDIX (1)

GROUND COMMUNICATIONS-ELECTRONICS STUDY

OPTION I - MOVEMENT OF GC&E FROM SAAD TO TOAD

I. ASSUMPTIONS

- a. Sacramento Army Depot will close with GC&E workload primarily transferring to Tobyhanna Army Depot.
- b. The Sacramento Army Depot electro-optics workload will transfer to Anniston Army Depot.
- c. The Army workload was derived from the Budget Strat for FY91-93. FY94 and FY95 workload was straight-lined from FY93. Reimbursable workload was based on historical data.
- d. Workload was not decremented based on a declining defense budget.
- e. Maximum capacity is defined by 1615 direct labor man-hours per year x the number of work positions x .95 and are calculated based on the maximum number of direct labor personnel that can work a single shift.

II. WORKLOAD CAPACITY/IMPACT

- a. Tobyhanna Army Depot's current total capacity of 5.3 million man-hours (which includes 3.9 GC&E capacity) leaves considerable surge capacity/capability even after assuming the SAAD GC&E workload.
- b. Tobyhanna Army Depot's total capacity will increase to 6.1 million man-hours with GC&E capacity of 4.6 million man-hours in FY93. This increased capacity is attributable to two congressionally approved military construction projects; e.g. a 178,000 square foot Communications Security (COMSEC) Facility and a 67,000 square foot Satellite Communications Mission Facility.
- c. In computing capacity, it is important to recognize that GC&E is a theoretical sub-category of the C-E commodity group. In practice, there is much commonality between the two. The same types of personnel skills, test equipment, and workplace are required to support C-E workload. For these reasons, GC&E capacity and C-E capacity can be considered the same.

III. COST SAVINGS

- a. Transfer of SAAD's workload to TOAD results in a DOD savings of \$106,036,000 during the period FY93-95. Tobyhanna Army Depot's substantially lower operating cost are reflected in its highly competitive bid rate (lowest in the U.S. Army Depot System Command) which easily overcomes the onetime costs incurred by the SAAD closure.
- b. Tobyhanna's competitive bid rate equates to a lower operating cost. Contributing factors include wage grade locality pay differences, organizational structure, direct to indirect ratios, direct labor yield, grade

structure, productivity/ management initiatives and the distribution of a large man-hour base across a low stabilized overhead cost. Further reduction of the bid rate will occur when SAAD workload is assumed..

c. One time transportation expenses for movement of SAAD's production equipment to TOAD are included in the cost analysis. However, analysis through a transportation model developed by TOAD provides a yearly savings of \$3,042,000 based on a global distribution of DOD units. This model projected transportation requirements based on Army population in each of 12 geographic worldwide. Shipment costs were based on standard profiles and costing data made available from the Military Traffic Management Command. The results of the model indicate substantial transportation savings since 65 percent of all customers are located closer to TOAD.

d. Transition of the electro-optics workload to ANAD could be accomplished through a planned phased-in thereby reducing or eliminating the transition costs associated with interim contractor support.

e. One-time military relocation costs could be further reduced or eliminated if normal rotations are scheduled to coincide with the planned depot closure. Currently SAAD has nine military positions associated with the GC&E workload.

f. Personnel separation costs solely attributable to the SAAD closure can be reduced below the estimate used in this study if the Army build down continues between now and the FY93 projected closure.

IV. MOBILIZATION/SURGE/CORE/READINESS/IMPACT.

a. Tobyhanna Army Depot has the capacity to accommodate SAAD workload while still retaining the ability to respond to any mobilization requirements.

b. Tobyhanna Army Depot has a newly constructed high technology Reserve Component Training Facility for the Army. Transfer of the SAAD workload would enable that training facility to expand its range of MOS training offered to Reserve Component and National Guard members. Tobyhanna is at the center of a 500 mile radius which represents the greatest density of Reserve Component population in the world.

c. Tobyhanna is strategically located near eastern ports, overseas, air terminals, the metropolitan areas of New York City and Philadelphia, major interstate highways, railroads, and airports. Analysis of east coast/west coast transportation routes shows that TOAD's location provides shorter access to the Persian Gulf and the European Theatre, and the majority of Army equipment users, thereby reducing turnaround time and maintenance float requirements. Both of these factors contribute to increased readiness of Army units.

d. Consolidation of all Army GC&E within one depot would simplify and at the same time enhance the process by which requirements are placed on the logistics system. Consolidation would also accommodate the expeditious filling of all GC&E requirements within the Army during peacetime and mobilization.

e. Readiness to the Army will be enhanced because of the consolidation of workloads. This is due to the following:

- (1) Availability of a larger electronic skill base capable of supporting all CE commodities.
- (2) The commonality of repair parts and test equipment.
- (3) Reduced transportation time due from the proximity of users.

f. The SAAD to TOAD option would clearly satisfy the Army's "core" requirements.

g. This option represents the least disruption in service for current SAAD CC&E customers since the equipment would still be serviced within the Army logistics system.

h. Tobyhanna can reacquire 19,800 acres of adjacent land for expansion purposes in the event of any national emergency.

V. POTENTIAL LAYAWAY

Potential layaway of buildings at SAAD for mobilization would result in the retention of 201,828 sq. ft. of work space and a savings of _____. Depot plant equipment which has not been transferred to TOAD could remain onsite and be included in the layaway.

VI. PROS AND CONS

a. Consolidation of all of Army's CC&E workload at TOAD will result in a U.S. Army Center of Technical Excellence for Communications-Electronics. Army's overall level of expertise would be greatly enhanced since all skills associated with C-E would be available at one location, thus facilitating technology sharing and creating a wider base of electronics knowledge. All of the depot's engineering skills would be singularly devoted to C-E, without the dilution of focus inherent in multi-commodity scenarios. This action will eliminate a significant duplication of facilities that presently exist within the Army. Industrial plant utilization rates will increase at all depots that receive transferred maintenance workload, and the utilization rates of Army depot maintenance facilities as an entire system will also increase due to the reduction in the overall capacity base.

b. This option allows the Army in particular and DOD overall to take advantage of the significantly lower operating costs at TOAD rather than SAAD—thus executing the work at a \$106,036,000 savings over a 5-year period.

c. Tobyhanna will receive the largest portion of SAAD's workload. Automated maintenance systems such as the Maintenance Shop Floor System and the Automated Storage and Retrieval System which are modern state-of-the-art information and material delivery systems to support this workload are already operational at TOAD.

d. Tobyhanna is engaged in cooperative ventures with many higher educational institutions to perform applied research in the depot's industrial setting thus applying the latest technology to enhance on depot productivity and manufacturing. Applications include surface mount technology testing, artificial intelligence, and laser welding, with Penn State, Lehigh, Wilkes College, and the University of Scranton.

e. Tobyhanna Army Depot's Environmental Stress Screening facility is the largest such testing facility in the Department of Defense. It consists of 12 temperature chambers and 5 vibration tables. Each chamber has a 48 cubic foot capacity and can undergo temperature changes of up to 20 degrees centigrade per minute, within the range of -73 to 173 degrees centigrade. The vibration tables are capable of 6000 force pounds for a bandwidth of 20 to 2000 hz. By exposing modules of components to variations in temperatures and vibration, marginal or defective components can be isolated and replaced to provide more reliable equipment. As a result of Desert Shield, we are processing all VRC-12 radios through this facility, thereby, increasing the radio's reliability in the harshest climate of the Persian Gulf.

f. Also located at TOAD is a large laboratory for simulation of weather/environmental conditions throughout the world. Because of the unique rain chambers, infrared ovens, altitude tester and other specialized equipment at the facility, materials can be tested against the requirements of desert, rain forest, arctic, and other harsh climates. Also available is shock, compression, and impact test equipment.

g. Tobyhanna was an early leader in the field of Test Program Sets (TPS) within DOD. Today it reaps the benefits of those 25 years of experience. The depot is the TPS Support Facility for the Depot System Command (DESCOM); providing all ATE/TPS related support services to the Communications-Electronics Command (CECOM) and Army elements throughout the world. The support includes all aspects of ATE, TPSSs, ATE hardware/software, standards and Configuration Management and Control. Technical assistance is provided to major subordinate commands (MSCs) and Project Managers including should cost studies and final acceptance of contractor prepared TPSSs. Tobyhanna Army Depot also maintains (in a newly constructed environmentally controlled building) the TPS Repository for the depot and CECOM. Responsibilities of the TPS Repository consist of life cycle configuration control; storing of TPS files, resources and media; reproduction, assembly, test and worldwide distribution, data links, processing of engineering changes proposals (ECPs) and over-the-counter issue.

h. Tobyhanna has the largest engineering department of any Army depot and includes a Production Design & Development Branch giving TOAD the capability to design, manufacture & integrate new electronics assemblages for all services. This unique Special Fabrication mission has made TOAD the largest supplier of C-E shelters for DOD. A 22-workstation state-of-the-art Computer Aided Engineering (CAE) System provides advanced capabilities such as solids modeling, hidden line removal, finite element analysis, numerical control data generation, and automatic printed circuit board placement, routing, and simulation. In addition static and dynamic response analysis enable TOAD to avoid destructive testing of systems. Drawings are automatically produced, modified, and verified. Bills of Material and CNC program tapes are also electronically generated.

i. Since 1975, TOAD has been responsible for providing satellite communications systems for the Tri-Services, White House, and NATO Signatories. TOAD provides support for both strategic and tactical satellite systems. By virtue of TOAD's experience and expertise in the field of satellite communications and involvement with the Space Technology Working Group, the depot was selected as CTX for Space Communications. TOAD maintains the engineering test bed for Satellite Digital Communications Subsystems (DCSS) for the Defense Satellite Communications Systems. TOAD has designed and built the majority of DCSS sites worldwide.

j. Maintenance Support Facilities/Capabilities

(1) Tobyhanna Army Depot performs complete repair/overhaul for a variety of GCA, Surveillance, Interrogator, Weather and Mortar Locating Radar Systems. Maintenance services include overhaul modification, and upgrade and performance testing to original manufacturing specifications. Furthermore, technical support is provided by an experienced staff of professional engineers who possess a high degree of expertise in the area of radar technology.

(2) In addition, TOAD operates two Radar Antenna Pattern Ranges. These ranges give TOAD the capability to align and test many types of radar antenna. Using a sophisticated AZ over EL over AZ Test Pedestal, the Radiation Patterns, in the form of Amplitude vs. Azimuth plots, in any axis as required, are calculated and hard copies are produced by chart recorders. Axis include the horizontal, vertical, and the rotor used in the AN/MPQ-4A Mortar Locating Radar System. Horizontal and Circular Polarization mode adjustments are done onsite and the antennas are retested. Once complete these antennas are put in optimum optical, mechanical and electrical calibration before being returned to the radar system for final operational testings.

(3) The radar systems that have antennas tested at these ranges are:

- AN/TPN-18/18A Radar .
- AN/FPN-40 Radar
- AN/FSQ-84/84A Radar
- AN/TSQ-71B Air Traffic Control Central
- AN/TPX-41/44/46 Interrogator
- AN/MPQ-4A Mortar Locating Radar

(4) Tobyhanna performs final operational tests on all of the above mentioned Ground Control Approach Radars on our live target range. This includes conducting final precision approach of the overhauled radars with an aircraft to 300 ft. AGL. Accuracy of the radar is verified using a theodolite which has a .02 degree resolution. The surveillance modes and communication capabilities of these systems are checked during the flight test. This unique capability ensures high quality radar systems are fielded to Army aviation units.

k. Environmental Considerations - Tobyhanna Army Depot and SAAD environmental management programs operate all missions and related activities in compliance with state and federal regulatory requirements. A new state-of-the-art hazardous material storage facility is operational at TOAD. Tobyhanna's environmental initiatives include use of high volume, low pressure spray paint equipment in order to minimize VOC emissions and paint waste. New methodology in plating has minimized waste within this process. Alumina oxide grit has been replaced by zirconia alumina grit to reduce waste in the blasting process. Presently, extension of paint filter life and conversion of water curtain booths to dry filters are under study. Tobyhanna has designed a cradle-to-grave tracking system for hazardous waste/materials. This system is in process of final test prior to implementation. At the present time 40 percent of the total waste generated is recycled with initiatives in place to increase this capability.

l. With the constrictions of the fiscal year 91 congressionally approved MILCON a communications security building, TOAD will have the largest COMSEC facility in DOD and will be capable of supporting all services workload.

m. Tobyhanna has a demonstrated ability to provide rapid, onsite technical assistance to its many customers throughout the world. An entire organizational element within TOAD is devoted to this critical function, traveling to CONUS and OCONUS sites as needed. In FY90, 17,808 man-days of effort was expended on the road in such diverse locales such as Cuba, Panama, Norway, United Kingdom, Italy, Puerto Rico, Australia, Turkey, Germany, Japan, and Korea.

n. Tobyhanna is considered the pre-eminent employer in Northeastern Pennsylvania. This is reflected in the fact that 5,000-6,000 employment inquiries are received annually; the 7.2 percent unemployment rate in the surrounding communities; and the depot's average annual salary (\$24,690) which compares favorably to the local average salary for manufacturing industries (\$20,280). Additionally, past experience demonstrates TOAD's ability to hire the required number of skilled personnel. In Jun 89, TOAD requested an OPM register for 100 WG-08 Electronics Mechanics Worker positions. Within weeks, 264 qualified candidates were referred for hire. The Veteran's Readjustment Act (VRA) authority has recently been expanded to allow employment of post-Viet Nam era vets. Since the program's inception, e.g., 69 percent of the total work force are veterans. Other factors which support TOAD's recruitment ability are the local schools which offer specific electronics curriculum; e.g., Lincoln Technical, Johnson School of Technology, Luzerne Community College, and three Penn State campuses. Additional technical expertise is available through local universities and high tech centers e.g., Ben Franklin Program at Lehigh University. In addition, Pennsylvania Industrial Resource Council, Northeastern Pennsylvania Manufacturers Association, Research Assistance Program with Wilkes College, etc. Mobilization analysis completed by TOAD's Civilian Personnel Division confirms this ability to favorably react to, and exceed, a large hiring requirement across the range of required skills.

o. Fiber Optics

(1) Tobyhanna has established repair/overhaul capability to support Fiber Optic workload. Specialized equipment necessary to manufacture/repair/overhaul fiber optic cable assemblies is in place. Equipment available includes a fusion splicer, optical time domain reflectometer (OTDR), cutting and polishing machines, optical attenuation test sets, and associated tools. Tobyhanna is presently fabricating new and/or upgrading through technology insertion previously built systems which use fiber optics extensively. These fabricated systems include: the Defense Satellite Communications System - Operations Control System (DOCS); the Digital Group Multiplexer for PM Multi-Service Communications System (AN/-173, AN/TRC-174, AN/TRC-175; and AN/TRC-138A); and the Remote Relay System AN/TSQ-144 (Guardrail V); Corps Theatre Automated Service Center II; (CTASCII); Relocatable Army Processors for Intelligence Data Europe (RAPIDE); and Mobile Battle Management Demonstrator.

(2) Tobyhanna designed, manufactured and completed systems integration of 30 AN/TSQ-146 Digital Group Multiplexer (DGM) shelter systems for the Air Force. This effort included fabrication, test, technical manual preparation and provisioning.

p. Satellite Communications - Tobyhanna Army Depot provides the following support services to Project Manager Satellite Communications (PM SATCOM).

(1) Organic Depot Level Maintenance (DLM) - TOAD serves as the prime mission depot providing DLM repair/overhaul support for virtually all SATCOM Strategic, Tactical and Control systems. As the prime mission depot, TOAD supports approximately 25 unique major Satellite Terminals and over 2,100 Line Replaceable Units (LRUs), Subassemblies and modules. Several specific examples include:

(a) Ground Mobile Forces (GMF) Satellite Terminals such as the AN/TSC-85/93, Air Force AN/TSC-94/100, AN/GSC-40 Combined Ground Command Post Terminal and AN/MSQ-64 Force Terminal.

(b) Strategic Satellite Terminals to include the AN/FSC-78/79, AN/GSC-39, AN/GSC-49 Jam Resistant Secure Communications (JRSC) Terminal and the Digital Communications Satellite Subsystem (DCSS).

(c) AN/MSQ-114 Satellite Communications Monitoring and Control Central and subsystems of the Defense Satellite Communications System Operational Control System (DOCS).

(d) Future DLM workload includes the AN/GSC-52 State-of-the-Art Medium Terminal (SAMT), Single Channel Objective Tactical (SCOTT), Anti-Jam Control Modem (AJCM) and QM-73 Digital Data Modem.

(2) Design and Development and Manufacturing - TOAD serves as the prime system integrator for the DCSS. Our mission includes engineering design, fabrication, integration and testing of complex state-of-the-art systems deployed worldwide. Examples include the AN/MSQ-66 DCSS Van, AN/MSQ-74 Operations (OPS) Van and approximately 74 unique electronic racks and interfaces.

(3) Test Program Set (TPS) Development and Acceptance - Tobyhanna has developed a variety of TPSSs to support SATCOM mission requirements and is presently negotiating future requirements. In addition, TOAD provides technical assistance and guidance to PM SATCOM and CECOM during the acceptance of contractor developed TPSSs.

(4) Technical Assistance and Site Installations

(a) Tobyhanna provides emergency on-site technical assistance to SATCOM sites located worldwide. In addition, corrective assistance is provided to site personnel via telephone through use of unique SATCOM test and facility at TOAD. Field problems can be duplicated and resolved through use of this system.

(b) Tobyhanna has performed numerous site installations and modifications/upgrades to support SATCOM mission requirements. The depot is currently negotiating requirements for TOAD to install nearly 400 Anti-Jam Control Modems at GTF Satellite Terminals deployed worldwide. Tobyhanna is also scheduled to incorporate the Single Channel Transponder Receiving Set (SCTR) at approximately 114 sites.

(c) Tobyhanna provides orientation training/instruction, consisting of both theoretical and "hands-on" training to personnel at various sites and at TOAD. Prior to fielding of SATCOM systems, personnel from gaining installation travel to TOAD to receive technical training and hands-on experience with their equipment, thus ensuring smooth transition to the customer.

(5) Integrated Logistic Support (ILS) - TOAD's activities span the entire ILS function to include development and evaluation of Integrated Logistics Support Plans (ILSPs); validation, verification and development of numerous test procedures and specifications; and provisioning functions.

(6) TOAD's major fabrication effort for the SATCOM Program included the manufacturing and fielding of approximately 4,400 electronic equipment racks to 104 sites deployed worldwide. As a future modernization initiative a SATCOM Mission Facility will provide over 43,200 square feet of floor space to support overall SATCOM mission workload requirements.

q. Fire Control and Battlefield Automation - Tobyhanna Army Depot's support services to CECOM, MICOM, Foreign Military Sales, and other services include depot's repair/overhaul, modification and field support of the U.S. Army Tactical Fire Control and Battlefield Automations Systems. The following is a listing of the primary systems supported:

- AN/TSQ-73 Missile Minder System
- AN/GSG-10 Tactical Fire Control System (TACFIRE)
- AN/GYX-29 Battery Computer System (BCS)
- OD-144 Gun Display Unit (GDU)
- AN/PSG-2A/B Digital Message Device (DMD)
- AN/PSG-5 FIST-DMD
- M-23 Mortar Ballistics Computer
- AN/GSC-21 Variable Format Message Entry Device (VFMD)
- AN/TSM-141 TACFIRE Maintenance Support System

r. Tobyhanna also has its own in-house Technical Training School (Toby Tech) with 7 full-time instructors providing instruction in soldering, basic math, specialized test equipment, digital electronics, linear and digital integrated circuits to name a few. Tobyhanna has its own in-house 4-year Apprentices Program in electronics and metal trades. Employees enter the program as trainees and graduate as full-fledged journeymen. This was the first Department of Labor approved Electronics Apprentices Program within DOD.

s. The Center of Technical Excellence (CTX) concept was created within DESCOM to assure complete integration of the depot industrial base in support of the total acquisition life cycle. Under this concept, individual depots are designated as the CTX for selected major new weapon systems and must then provide intensive logistics management of the new system from inception thru fielding. Based on TOAD's capabilities and technical expertise, it is currently assigned 12 CTX programs - the most of any depot within DESCOM.

t. Total Quality Management - Tobyhanna Army Depot has always been recognized for its progressive and innovative management initiatives throughout the Army. In 1988 the depot committed itself to the implementation of TQM. The process began with a rigorous training program for all senior level managers. This included mandatory sessions by the Federal Quality Institute, Deming Seminars, Statistical Process Control Classes, and a host of other training that provided a common language for management. The efforts have set the stage for a number of process improvements. One of the depot's most critical processes, the acquisition cycle, was dissected and analyzed to identify and implement improvements through a Process Action Team. In addition to these formal process improvements, numerous experiments are being conducted within the Supply and Contracting arenas. To further develop our continuous improvement ability a TQM/Customer Relations session is taught monthly to the depot workforce. The TQM efforts and those of the depot's Quality Circles have been integrated to ensure a common direction.

u. In cooperation with East Stroudsburg University, VIASAR (Voice Interface for Automated Storage and Retrieval) has reduced material handling, keypunch errors contributing to increased productivity. VIASAR removes the need for stationery process stations allowing workers to move freely to the workload, induct data and correct errors immediately. Data is inducted via voice input and errors are isolated and reported via voice output eliminating labor intensive tasks by operators.

v. Printed Circuit Board Manufacturing - Tobyhanna Army Depot has the capability to fabricate single and double-sided Printed Circuit Boards (PCBs). Features of this operation include: a central reproduction area with imaging systems, state-of-the-art PCB fabrication equipment, component assembly workstations, and MIL-P-55110 test and inspection stations. Equipment necessary for manufacture of multi-layer printed circuit boards is presently being acquired. The design of PCBs is done with a Computer Vision Computer Aided Engineering System, allowing the efficient production of a Level III Drawing Package and any required Technical Manuals. Testing of the completed PCBs is accomplished with utilization of Automatic Test Equipment (ATE).

w. Tobyhanna Army Depot has supported Federal, State and local law enforcement agencies in their drug interdiction efforts for nearly 5 years, and has special accounts established to provide technical expertise, field support, maintenance and storage of ground sensor surveillance systems owned by the U.S. Customs Service and U.S. Marine Corps and loaned to the Office of National Drug Control Policy (ONDCP). Tobyhanna is also a major contributor to the joint Federal, State and local law enforcement program known as Operation Alliance, whose eradication of illegal drug trafficking in the United States. Tobyhanna stores, maintains, overhauls, and installs a large variety of highly complex sensor systems capable of detecting metallic, acoustic and seismic intrusions across U.S. borders. Training of appropriate law enforcement officials in the proper operation of this equipment is also the prime responsibility of TOAD personnel. Since 1986, Tobyhanna has also overhauled and repaired a large volume of sensor equipment in support of the President's War on Drugs, and has assisted numerous Field Narcotics Officers in the placement of ground sensor equipment along the borders of the United States.

x. The depot's 24-hour customer assistance recorder or "Hotline" established in 1982 provides prompt and accurate information or assistance to Armed Forces personnel, both Active Duty and Reserve and their civilian counterparts. This service can be accessed via the Army-wide Defense Switched Network (DSN) or commercially and provides an integral link between the depot and the soldier in the field. It is widely recognized as a quick and reliable source of help.

GROUND COMMUNICATION-ELECTRONICS STUDY
IMPACT OF MOVING SAAD TO TAD
DOLLARS IN MILLIONS

TAB	COST ELEMENT	FY91	FY92	FY93	FY94	FY95	COST
1.	RELOCATION OF PRODUCTION EQP						
	TSC			3.835			3.835
	SHIPPING			.053			.053
2.	PERSONNEL REDIST						
	UNEMP COMP			.990			.990
	SEVERANCE			4.948			4.948
	PCS-CIV			9.689			9.689
	PCS-MIL			.108			.108
3.	CAPABILITY/DEV						
	CONSTRUCTION			4.500			4.500
	TRANSITION			1.476			1.476
	CLOSE DOWN			.056			.056
4.	TRANSPORTION CHG			(3.042)	(3.042)	(3.042)	(9.126)
5.	INVENTORY			.577			.577
6.	NEW PERSONNEL						
	PRODUCTIVITY IAG			.831			.831
	RECRUIT EXP			.170			.170
7.	CHG IN PROD COST						
	OVERHEAD/DIFF			(10.200)	(10.200)	(10.200)	(30.600)
	SALARY			(25.481)	(25.481)	(25.481)	(76.443)
8.	COST SAVINGS MILCON			(3.900)			(3.900)
9.	BASE OPERATION SUPP			(4.400)	(4.400)	(4.400)	(13.200)
	YEARLY COST			27.233			27.233
	YEARLY SAVINGS			(47.023)	(43.123)	(43.123)	(133.269)

DELTA

ARMY PACKAGE: CONSOLIDATE SAAD GROUND C-E AT TOAD.

ELEMENTS OF COST:

1. RELOCATION OF PRODUCTION EQUIPMENT. THE PLANT EQUIPMENT CURRENTLY LOCATED AT SAAD WAS LISTED AND IDENTIFIED TO TOAD FOR REVIEW. IN A METHODOICAL APPROACH, TOAD FIRST ANALYZED THE CURRENT SAAD WORKLOAD AND DETERMINED WHICH PIECES OF EQUIPMENT EACH PROGRAM REQUIRES. NEXT, EXCESS TOAD MACHINE CAPACITY WAS FILLED WITH SAAD WORKLOAD WITH THE REMAINING WORKLOAD BEING QUANTIFIED AGAINST THE LISTING OF SAAD EQUIPMENT. FINALLY, DESCOM ENGINEERING CALCULATED THE COSTS OF DISASSEMBLYING, PACKAGING, TRANSPORTING, UNPACKAGING, REASSEMBLYING, AND CALIBRATING THE EQUIPMENT SELECTED FOR TRANSFER FROM SAAD TO TOAD. TRANSPORTATION RATES AND EQUIPMENT HANDLING COSTS WERE OBTAINED FROM THE MILITARY TRAFFIC MANAGEMENT COMMAND AND ENGINEERING SOURCE REFERENCES. THE COSTS TO RELOCATE THE NIGHT VISION - ELECTRO OPTICS EQUIPMENT, CURRENTLY LOCATED AT SAAD, TO ANAD WERE CALCULATED IN THE SAME MANNER.

TO RELOCATE SELECTED EQUIPMENT FROM SAAD TO TOAD, \$ 2,569,000 WOULD BE NEEDED FOR TEARDOWN/PACK/UNPACK/SETUP/CALIBRATE AND \$ 39,000 WOULD BE REQUIRED TO COVER ACTUAL SHIPPING CHARGES. FOR THE MOVE FROM SAAD TO ANAD, TEARDOWN/PACK/UNPACK/SETUP/CALIBRATE WOULD SUM TO \$ 1,267,000 WITH SHIPPING COMING TO \$ 14,000. TOTAL COST TO REDISTRIBUTE GROUND COMMUNICATIONS AND ELECTRONICS EQUIPMENT WOULD BE \$ 3,839,000.

2. PERSONNEL REDISTRIBUTION. THE COST TO REDISTRIBUTE SAAD PERSONNEL INCLUDES THE ASSOCIATED EXPENSE OF UNEMPLOYMENT COMPENSATION, SEVERANCE PAY, PERMANENT CHANGE OF STATION (PCS) FOR CIVILIANS, AND PCS FOR MILITARY. UNEMPLOYMENT COMPENSATION AND SEVERANCE PAY WAS CALCULATED FOR 434 SAAD EMPLOYEES, AVERAGE AGE 45 YEARS WITH 14 YEARS SERVICE AND AN AVERAGE SALARY OF \$ 33,000, BEING SEPARATED. THESE EMPLOYEES WERE JUDGED TO BE HIGHLY SKILLED AND LOCATED IN A COMPATIBLE, RAPIDLY EXPANDING, LABOR MARKET. THEREFORE, SEPARATED EMPLOYEES WERE ASSUMED TO BE WITHOUT A FULL TIME JOB FOR THE PERIOD OF 12 WEEKS.

UNEMPLOYMENT COMPENSATION PAYMENTS WERE CALCULATED AT \$ 190 PER WEEK FOR 12 WEEKS FOR 434 SEPARATED EMPLOYEES TO TOTAL \$ 989,520. LIKewise, SEVERANCE PAY WAS DETERMINED FOR 12 WEEKS TO EQUAL \$ 11,411 PER PERSON BASED AVERAGE AGE, SERVICE TIME, AND CURRENT PAY FOR A TOTAL COST OF \$ 4,952,374. THOSE EMPLOYEES ELIGIBLE FOR PCS DUE TO A TRANSFER OF MISSION OR PRIORITY PLACEMENT RIGHTS TOTAL 364 CIVILIANS EQUATING TO \$ 9.7 MILLION. MILITARY RELOCATIONS ASSOCIATED WITH MAINTENANCE ARE 9 FOR A TOTAL COST OF \$ 128,000; HOWEVER THIS EXPENSE COULD BE REDUCED IF NORMAL ROTATIONS ARE SCHEDULED TO COINCIDE WITH THE PLANNED DEPOT CLOSURE.

3. CAPABILITY/DEVELOPMENT. TO CLOSE SAAD, A \$ 4.5 MILLION RENOVATION OF A WAREHOUSE WOULD BE REQUIRED FOR THE NIGHT VISION - ELECTRO OPTICS REPAIR FACILITY AT ANNISTON ARMY DEPOT. TO ENSURE ARMY READINESS DURING THE TRANSFER OF WORKLOAD FROM SAAD TO TOAD, CERTAIN REPARABLES COULD REQUIRE SHORT TERM CONTRACTOR SUPPORT. THE ADDITIONAL COST OF PLACING 43,328 DIRECT LABOR HOURS OF NIGHT VISION - ELECTRO OPTICS WORKLOAD ON NATIONAL MAINTENANCE CONTRACT FOR SIX MONTHS IS APPROXIMATELY \$ 1.5 MILLION. ARMY IS CURRENTLY STUDYING HOW TO ACCELERATE THIS WORKLOAD PRIOR TO CLOSURE TO AVOID SAID COST. TO MOVE GROUND COMMUNICATIONS AND ELECTRONICS FROM SAAD WOULD RESULT IN SEVERAL RELATED DEPOT FACILITIES BEING CLOSED AT A COST OF \$ 56,448.

4. TRANSPORTATION CHANGE. WHILE THE ARMY PRESENTLY MAINTAINS AN EAST COAST AND A WEST COAST COMMUNICATIONS-ELECTRONICS REPAIR FACILITY, WORKLOAD IS NOT ASSIGNED BASED ON GEOGRAPHY. ESSENTIALLY, CUSTOMER LOCATION AND WEAPON SYSTEM DENSITY HAVE HAD NO INFLUENCE ON THE ARMY'S ASSIGNMENT OF THE GROUND COMMUNICATIONS AND ELECTRONICS WORKLOAD TO EITHER SAAD OR TOAD. BASED ON THE TRANSPORTATION COST MODEL USING MILITARY TRAFFIC MANAGEMENT COMMAND DATA AND THE ACTUAL WORLDWIDE SYSTEM LOCATIONS AND DENSITIES, THE RELOCATION OF THE SAAD WORKLOAD TO THE EAST COAST, I.E., TOAD, WOULD SAVE \$ 3,042,042 PER YEAR IN TRANSPORTATION CHARGES.

5. INVENTORY. COMMUNICATIONS - ELECTRONICS SUPPLIES PRESENTLY STORED AT SAAD AND HAVING AN ACTIVE DEMAND STATUS WOULD HAVE TO BE RELOCATED TO TOAD. CHARGES WERE CALCULATED USING ENGINEERING ESTIMATES CONSISTENT WITH THE MILITARY TRAFFIC MANAGEMENT COMMAND COSTS FOR TRANSPORTATION. ACTIVE STOCKS ASSOCIATED WITH GROUND COMMUNICATIONS AND ELECTRONICS WOULD COST \$ 577,153 TO RELOCATE TO TOAD.

6. NEW PERSONNEL. COSTS INCORPORATED IN THIS ELEMENT ENCOMPASS RECRUITMENT EXPENSES TO BE INCURRED AT TOAD AND THE PRODUCTIVITY LAG RESULTING FROM THE APPLICATION OF THE LEARNING CURVE TO THE NEWLY HIRED TOAD EMPLOYEES. TO HIRE 463 PERSONNEL AT TOAD, AT A PROCESSING COST OF \$ 116.97 EACH, AND 273 EMPLOYEES AT ANAD, AT A PROCESSING COST OF \$ 415.00 EACH, THE TOTAL EXPENSE WOULD BE \$ 169,527. THE PRODUCTIVITY LAG ASSOCIATED WITH THESE EMPLOYEES WOULD COST \$ 831,188 FOR A 25% FACTOR OF THE \$ 17.05 DIRECT LABOR WAGE TIMES THE 195,000 DIRECT LABOR HOURS FOR GROUND COMMUNICATIONS AND ELECTRONICS WORKLOAD DESIGNATED FOR TRANSFER.

7. CHANGE IN PRODUCTION COST. OVERHEAD, DIFFERENTIALS, AND SALARY SAVINGS COMPRISE THE REDUCTION IN PRODUCTION COSTS. THE MOVEMENT OF THE WORKLOAD FROM TOAD TO ANAD RESULTS IN THE ELIMINATION OF SALARIES TOTALING \$ 25.2 MILLION FOR CIVILIANS AND \$ 281,000 FOR MILITARY. NATURALLY, THE WAGE GRADE LABOR RATE IS SIGNIFICANTLY LOWER AT TOAD AND ANAD THAN AT SAAD AND SM-ALC. THESE LOWER COSTS OF DOING BUSINESS EQUATE TO \$ 10.2 MILLION IN ADDITIONAL SAVINGS BY RELOCATING GROUND COMMUNICATIONS AND ELECTRONICS WORKLOAD FROM THE WEST COAST TO TOAD AND ANAD. TOTAL COST OF PERFORMING THE GROUND COMMUNICATIONS AND ELECTRONICS WORKLOAD WAS COMPARED BETWEEN SAAD AND THE TOAD/ANAD ALTERNATIVE. AGGREGATE SAVINGS WAS ACCOUNTED TO THE NUMBER OF ELIMINATED POSITIONS, THE LOWER COST OF LABOR AND OVERHEAD AT TOAD/ANAD, AND THE AVOIDANCE OF THE BASE OPERATIONS EXPENSE OF SAAD. HOURLY RATE COMPARISONS WERE PERFORMED AMONG DEPOTS TO EXHIBIT THE BREAK-OUT OF EACH CATEGORY OF EXPENSE.

8. COST SAVINGS ON MILCON. THE MICROWAVE FACILITY PLANNED FOR SAAD IN FY 89 HAS BEEN DELAYED PENDING THE OUTCOME OF THE BASE CLOSURE STUDY OF THE DEPOT. THIS FACILITY WOULD NOT BE REQUIRED IF GROUND COMMUNICATIONS AND ELECTRONICS WOULD BE TRANSFERRED TO TOAD. .

9. BASE OPERATIONS SUPPORT. THE CLOSURE OF SAAD WOULD ELIMINATE THE NEED FOR THE PAN AM WORLD SERVICES CONTRACT VALUED AT \$ 4.4 MILLION.

GROUND COMMUNICATIONS AND ELECTRONICS STUDY

OPTION 2 SAAD GCE WORKLOAD TO SH-ALC

(INCLUDING ELECTRO-OPTICS)

APPENDIX (3)

(HOURS IN THOUSANDS)

DEPOT	FY 91 FUNDED WKLD	FY 91 @1615 CAP	FY 91 CAPACITY % UTIL	FY 92 FUNDED WKLD	FY 92 @1615 CAP	FY 92 CAPACITY % UTIL	FY 93 FUNDED WKLD	FY 93 @1615 CAP	FY 93 CAPACITY % UTIL	FY 94 FUNDED WKLD	FY 94 @1615 CAP	FY 94 CAPACITY % UTIL	FY 95 FUNDED WKLD	FY 95 @1615 CAP	FY 95 CAPACITY % UTIL
SAAD	975	2,394	40.7%	1,113	2,394	46.5%									
TOAD	1,907	3,859	49.4%	2,122	3,859	55.0%	2,144	4,570	46.9%	2,144	4,570	46.9%	2,144	4,570	46.9%
SH-ALC	1,194	1,777	67.2%	1,265	1,777	71.2%	2,220	1,777	125.0%	2,196	1,777	123.6%	2,186	1,777	123.1%
USMC BAR	206	203	101.7%	170	164	103.4%	169	166	101.6%	170	166	102.2%	181	172	105.1%
USMC ALB	220	213	103.1%	247	238	103.8%	250	238	105.1%	251	240	104.7%	253	240	105.5%
HAD-PH	9	14	64.5%	9	14	65.7%	9	14	65.7%	9	23	38.3%	9	14	65.7%
HAD-JA	1	5	20.4%	1	5	20.4%	1	5	20.4%	1	5	20.4%	1	5	20.4%
HAD-NOR	4	19	20.2%	4	19	21.5%	4	19	21.5%	4	19	21.5%	4	19	21.5%
NESEC SD	16	25	62.9%	18	25	70.7%	19	25	74.7%	21	25	82.5%	23	25	90.4%
NESEC POR	2	4	51.1%	2	4	51.1%	2	4	51.1%	2	4	51.1%	2	4	51.1%
TOTALS	4,534	8,512	53.3%	4,951	8,498	58.3%	4,818	6,817	70.7%	4,798	6,829	70.3%	4,803	6,825	70.4%

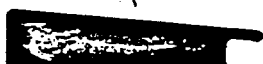
APPENDIX (3)

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A

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DDMC SUB-GROUP FOR GCE
OPTION II NARRATIVE

Option II: To evaluate the cost data and impact of moving Sacramento Army Depot (SAAD) Ground Communication-Electronics (GCE) workload to Sacramento Air Logistics Center (SM-ALC).

Option II Study Limitation: The Air Force has analyzed and accepted cost data associated with moving the SAAD GCE workload to Tobyhanna Army Depot (TOAD) (approximately 2000 miles), provided by the Army, in determining commensurate costs to move the SAAD workload to SM-ALC (approximately 11 miles).

Exception: Although the Rotary Wing Study approved by the DDMC was supposed to be our guide in performing this study, the Marine Corps (Chair) and the Army advocate using composite depot labor rates in determining cost savings within the Change in Production Cost category of the GCE Study. The Rotary Wing Study acknowledged the disparity in computing labor rates between the services and leveled the competition through use of an agreed to average annual salary and percentage of reduction in overhead personnel to arrive at the Change in Production Cost. The Air Force disagrees with the GCE Study methodology of using composite rates for cost comparisons.

1. Assumptions:

a. SM-ALC's industrial infrastructure (overhead skills and support facilities) will readily accommodate the SAAD requirements.

b. If Option II is not selected, SM-ALC facilities will be laid away to increase facility utilization to approximately 100 percent. An initial (draft) layaway plan is enclosed as Table, reference Table X(3).

2. Cost/savings: Moving SAAD's GCE workload to SM-ALC would net first years savings of at least \$ 11.2M. Net five year savings would be at least \$ 32.5M. As stated in the above note, the cost/savings computations for Option II are derived from a factorial analysis of the Army data. A specific breakdown of the cost elements may be found beginning on page 12 of this report.

a. In addition to providing all typical GCE depot support, SM-ALC has several unique capabilities which enhance quality and efficiencies and reduce depot support costs.

(1) Application of neutron radiography to display multi-layer circuit card configuration at each level expedites reverse engineering costs by approximately 500 percent.

(2) Use of plastic media to remove electronic component and shelter finishes permits removal of surface coatings without affecting layers of corrosion treatment which reduces the time

(number of steps) and costs associated with refinishing shelters and other GCE components. In addition, use of plastic media reduces chemical waste and disposal costs.

(3) Application of a laser guided parts replicator provides the capability to develop Numerical Control (NC) tapes, for machining operations, in a fraction of the time needed for manual programming which reduces support costs and weapon system down time.

(4) Extensive application of the Ada programming language in Test Program Set software development operations at SM-ALC also reduces programming cost and the time needed to repair war readiness materiel.

3. Option II Workload Capacity Impact (SAAD to SM-ALC):

a. Based on the capacity utilization database, the Option II impact to SM-ALC's capacity is as follows (reference Table 22):

(1) SM-ALC GCE only facility impact equates to 120 percent utilization.

(2) SM-ALC total CE facility impact equates to 98 percent utilization.

(3) SM-ALC total facility impact equates to 82 percent utilization.

4. Option II mobility/surge/core/readiness impacts:

a. Mobility will remain unchanged if SAAD GCE workload is moved to SM-ALC. The mobility personnel at SM-ALC are in a high state of readiness at all times. Organic workload fluctuations have no affect on mobility readiness.

b. Exercising Option II will increase the SM-ALC low surge skill base for application to high surge requirements in the event of war. The Air Force Logistics Command (AFLC) balances high and low surge workloads at all five Air Logistics Centers (ALC). The goal is to ensure adequate low surge workloads are in place to maintain sufficient resources to meet the demand of high surge items in the event of war.

c. Core: Improves business (cost) effectiveness in maintaining core skills needed to respond to wartime support requirements. In maintaining core skills, one of the prime Air Force considerations is the economies associated with maintaining an organic capability. Per hour overhead and indirect costs are reduced when they are spread over a larger number of hours. Exercising Option II would be a good business decision.

d. Readiness: Option II provides the least amount of risk to ensuring adequate war readiness materiel is available to the

field in the event of war. The risk is low because movement of personnel within the same geographic community ensures 100 percent re-employment of system experts. It also minimizes the risk of damage to/loss of sensitive electronic test equipment and parts (movement is only 11 miles). Conversely, movement of personnel and materiel over 2000 miles results in higher risks associated with personnel severance, PCS, recruitment and training and damage to/loss of sensitive electronic test equipment and parts. Option II ensures DoD's ability to provide adequate quantities of war readiness materiel to the field in the event of war.

5. Option II potential facility layaways:

a. If not selected, results in layaway of DoD's most modern GCE support facilities.

b. Potential layaway plan is at Table X(3).

c. The draft layaway plan results in a first year cost of \$ 596,967 and would yield an annual payment against that debt of \$ 35,860. At the five year interval the net result would be a debt of \$ 453,527. The break even point would be attained in 17.6 years.

6. Option II pros & cons:

Pros:

a. The conservative cost analysis applied to examine the SAAD transfer to SM-ALC renders an immediate (first year) payback generation of at least \$ 11.2 million and a five year savings of at least \$ 35.9 million.

b. Although other alternatives (applying other data to arrive at changes in production cost) could indicate a greater cost savings, it is indisputable that movement of the SAAD workload to SM-ALC would provide the lowest execution cost. It is faster, easier, causes less disruption to mission capability and is more economical to move SAAD personnel and equipment 11 miles than it would be to other CONUS locations.

c. The movement of SAAD GCE workload to SM-ALC would provide the lowest risk to negative impact on users. Retention of the current SAAD electronic technicians would virtually eliminate any need to recruit, train or contend with a reduction in production capability (learning curve), which would be inherent if the workloads were moved to other CONUS locations. With the United States on the brink of a war in the Middle East, maintaining DoD's war mission depot logistics support system at a high level of readiness is imperative. Retention of the SAAD electronic system experts at SM-ALC will insure an uninterrupted depot logistics support system.

d. Moving SAAD's GCE to SM-ALC provides no risk related to skill recruitment nor recruitment cost. Although electronic skills may be recruited it is not without difficulty. Private industries are often able to provide better wage and career inducements than civil service and coupled with the current hiring restrictions, delays could occur. In addition, the costs associated with recruiting, interviewing and training would be non-existent if the SAAD GCE workloads are transferred to SM-ALC.

e. An SM-ALC assumption of SAAD GCE workload would provide the lowest possible negative Sacramento community impact (maximizes use of currently employed Sacramento area personnel). Movement of the SAAD GCE to any other CONUS location would cause the following Sacramento community impacts:

- (1) Loss of \$ 91.8 million payroll.
- (2) Loss of \$ 2.0 million in utility revenues.
- (3) Loss of \$ 22.4 million in local SAAD procurements (40 percent of \$ 56.0 million).
- (4) Loss of 3700 SAAD jobs in Sacramento.
- (5) Loss of jobs for local businesses: medical, grocery, clothing, automotive, housing, logistics supply support (electronic components), etc.
- (6) Loss of federal funding to schools for children of federal employees.
- (7) Combined Federal Campaign fund losses (\$ 234 thousand for CY90) for local charity needs.

f. Moving SAAD's GCE workload to SM-ALC provides the lowest negative impact to human factors. Forcing families to move often results in separations, unemployment and forced retirements. It has been our experience that blue collar workers are reluctant to leave the area. Most families are dual-income, and would prefer to operate for 6 months to a year on a single income awaiting suitable employment in the area. Moving SAAD workload to SM-ALC to the maximum extent possible would minimize the stress on families and the entire Sacramento area community.

g. The movement of SAAD GCE workload to SM-ALC increases utilization of one of DoD's most modern GCE facilities, which maximizes process efficiencies, product cost, quality, reconfiguration flexibility and human factors. Based on current data, this move significantly increases SM-ALC capacity utilization; GCE to 120 percent and total CE to 99 percent utilization.

h. Moving SAAD's GCE workload to SM-ALC retains Army assets at a west coast GCE depot for mobilization. Although today's war fighting focus is on the Middle East, retention of a major GCE capability on the Pacific and Atlantic fronts has

strategic merit. History has demonstrated that the United States has and may again be threatened or need to support allies in the Pacific theater. Thus, geographic and strategic depot proximity is fluid and locations on both seaboard would be beneficial.

i. Moving SAAD's GCE to SM-ALC increases DoD inter-servicing by 28 percent. Analysis of the latest Joint Policy Coordinating Group for Depot Maintenance Program Objective Summary, Table A-1, indicates there is an inter-servicing trade deficit between the Air Force and Army; currently the Air Force inter-services 9.8 hours of work to the Army for every 1.0 hour of work the Army returns to the Air Force. The same document indicates the total current inter-servicing workload for FY88 (latest data available) was 3,646,979 direct labor hours. Movement of the SAAD GCE workload to SM-ALC would increase the total DoD inter-servicing by 1,031,000 direct labor hours or 28 percent.

j. Large Radars: SM-ALC is the Inventory Control Point (ICP) and depot for most large radars in the DoD inventory. Examples include the FPS-117, which is an early warning system, and the TPN-19 and GPN-22 radars, which are GCE. These systems have many similar components that are repaired by the same Electronic Mechanics using the same facilities and support equipment. The Electronic Engineers and Electronic Technicians may also be the same for certain components. These components include such things as wave guides, receivers, transmitters, and phase shifters. Adding the SAAD GCE would add further economies (increased facility utilization and decreased indirect and overhead ratios) to DoD's largest radar repair capability and expand the skills base used for early warning and space systems. These core skills, facilities and equipment must be maintained at SM-ALC for accomplishment of the Space and Early Warning workloads.

k. Electronic Assemblies: SM-ALC has the most sophisticated and diverse facilities for repair and manufacture of electronic assemblies in DoD, and in some cases, in the world. Capabilities include printed circuit board manufacture, VHSIC insertion, fiber optic insertion and repair, nuclear hardness testing and certification, and reverse engineering. These capabilities, as well as the Electronic Mechanics, Engineers and Technicians who repair them, are shared among all of the electronic workloads at SM-ALC, including avionics, space and GCE systems. For example, SM-ALC has a unique capability in the neutron radiography facility that is used to provide an image of the interior structure of printed circuit cards for reverse engineering and manufacture. This facility is also used to test and certify the nuclear hardness of specific electronic components. Adding the SAAD GCE workloads to SM-ALC could only improve the response times and overall service to DoD's war fighting capability.

l. Many of the SM-ALC's GCE systems are software intensive. In order to properly support these systems, ICP responsibilities (primarily sustaining engineering), hardware mainte-

nance, software support and configuration control must all be collocated. SM-ALC has extensive software support facilities that meet the collocation requirement and are shared with other electronic programs under the Extendible Integration Support Environment (EISE) concept. This core depot logistics support capability at SM-ALC would be extended to SAAD's current customers.

m. SM-ALC's ability to respond to mobilization requirements is augmented by immediate access to all forms of transportation. Air transport is readily available, from both McClellan AFB and Sacramento Metropolitan Airport. SM-ALC has a rail hub, and is at the junction of 4 major interstate highways. The city of Sacramento has a deep water Port and McClellan AFB has a dock with crane at the deep water channel leading to the Pacific Ocean for sea shipments. SAAD's excellent mobilization record could only be enhanced by transferring the GCE workload to SM-ALC.

n. SM-ALC has the physical plant capacity and the specialized GCE facilities to support the SAAD GCE shift, SM-ALC can store, track, transport, and manage all levels of GCE workload. Systems at other depots designed for smaller electronics workloads are not readily applicable to physically large systems, with long lead composite times, and short lead sub-system times. In-depot management of GCE systems during the OMEI (overhaul) phase is critical to timely support. This facility and experience base can readily support the SAAD workload transfer of GCE to SM-ALC.

o. SM-ALC is one of the most significant logistics activities in DoD. This center has developed an extraordinary capability for high-tech diagnostics, repair and manufacturing that exceeds anything else in DoD and, in some cases, is unmatched anywhere in the world (either public or private sector). By transferring SM-ALC's GCE workload to TOAD, use of the most modern electronics depot level repair facility in DoD will be lost to the GCE world.

(1) **REVERSE ENGINEERING:** The process of Reverse Engineering entails development of specifications, form/fit/function, repair procedures, etc., for a component by component analysis of the chip or circuit card itself. Reverse Engineering is frequently required to develop repair or manufacturing procedures for VHSIC chips, circuit cards and other components for which there is no repair source or data. Often these are parts that have been abandoned by the original manufacturer. There is also the problem of diminishing manufacturing sources for many components.

SM-ALC's capability in the area of microelectronics and Very High Speed Integrated Circuits (VHSIC) is unsurpassed in DoD. The Advanced Electronics Technology Center (AETC) at SM-ALC provides a unique and extensive microelectronic technology capability within AFLC. There is a Class 100 clean room and capability to design, develop, and manufacture microelectronics components. SM-ALC has an extensive capability for Reverse Engineering in the

area of microelectronics. SM-ALC has the microscopes, CAD/CAM systems, and testers required to duplicate schematics and determine function down to the component level. Using the Neutron Radiography equipment, SM-ALC has the capability to duplicate multi-layer circuit boards. SM-ALC also has the capability for computer simulation to test the operation of components. SM-ALC also has a VHSIC tester that provides a unique test capability for VHSIC chips. No other DoD agency has the capabilities that SM-ALC has in the area of microelectronics reverse engineering. SM-ALC provides this service to Army and Navy activities. The practice of reverse engineering is not prevalent in industry. There are few no company that provides this service. The Sacramento area has a high proportion of highly skilled electronics and software professionals. These skills are being developed in the Sacramento area as well as being imported from the "Silicon Valley" of the San Francisco Bay area. Many firms (HP, INTEL, etc.) reside in this area, thus providing a breeding ground for skills not found in the requisite numbers elsewhere. SM-ALC has made excellent use of this resource.

MICROELECTRONICS TECHNOLOGY CENTER
13,000 square feet Class 100 clean room \$35,000,000.00 capital investment 36 Electronics Applications Engineers

(2) PWB MANUFACTURE: SM-ALC's printed wire board manufacture facility can manufacture, test, and repair all types of circuit board assemblies found in industry today. Testing is possible from bare board through finished assembly, using Xray and/or ATE, depending on requirement.

PWBA MANUFACTURING AT SM-ALC (overview)	
15,000 square feet \$9,797,000.00 capital investment Quality Assurance/Mil Spec Compliance Lab	
PWBA TECHNOLOGIES SUPPORTED	
Surface Mount Technology Tape Automated Bonding Circuit On Board	Fine Pitch Technology Multi Chip Module Plated Through Hole
TYPES OF PWB's MANUFACTURED AT SM-ALC	
single sided flex multilayer	double sided ceramic

(3) **NON-DESTRUCTIVE INSPECTION:** The Neutron Radiography Non-Destructive Inspection (NDI) facility at McClellan is the largest robotic NDI facility in the world (military or commercial). This facility can handle an entire aircraft and inspect the structure for cracks, corrosion and other defects. This facility also provides SM-ALC with the unique ability to test and certify the radiation hardness of electronic components requiring this critical capability. A small nuclear reactor is the core of the NDI capability. This capability cannot be moved due to the possibility of contamination from the reactor. The NDI facility is a concrete and steel structure with insulated roof, concrete floors, X-ray and N-ray shielding, heating and ventilating systems, lighting, fire protection, restrooms, and offices. The N-ray and X-ray bays have floors capable of supporting medium load, tricycle gear fighter aircraft. The X-ray cell has 12 inch concrete shielding in the ceiling. There are four radiation source pits (four feet by six feet by three feet deep)-one in each corner of the N-ray bay. There are two powered and shielded doors in N-ray. One is 25 feet by 89 feet and the other is 8 feet by 10 feet powered and shielded. There are also two main doors in X-ray, one 25 feet by 78 feet and the other 8 feet by 10 feet. These doors are also powered and shielded with 1/4 inch thick lead. There are other smaller doors that are also powered and shielded. The Stationary Neutron Radiography System (SNRS) consists of a containment structure constructed of reinforced concrete around a reactor and exposure areas, with concrete block and prefabricated metal upper structure. The area includes water filled reactor tank, four radiography bays and control centers, preparation areas, and direct support equipment. The heart of the facility is a fully equipped, 250-Kilowatt Training Research Isotope General Atomic (TRIGA) nuclear reactor including parts handling, neutron beam, imaging, shielding, and safety systems. The costs associated with these facilities are:

NDI Facility:

Cost to Build: \$6.4 M plus \$7.6 M for Initial Outfitting Equipment (IOE)

Cost to Move: Not feasible

Cost to Rebuild: \$8.2 M plus IOE

SNRS:

Cost to Build: \$18.0 M

Cost to Move: Not feasible due to potential for nuclear contamination

Cost to Rebuild: \$18.0 M

Cost of TRIGA Reactor and Ancillary Equipment: \$10.6 M

(4) **SHELTERS:** Much of GCE is tactical in mission, and accordingly shelterized. SM-ALC has a 203,000 square foot facility solely dedicated to Van & Shelter manufacture and repair. This facility operates in compliance with State and local EPA guidelines, the most stringent in the country. SM-ALC's

hazardous material abatement program has achieved a 57% reduction in hazardous material, surpassing the DoD goal of 50% by 1992. Plastic media blasting (as opposed to chemical wash), Cadmium recovery, and high pressure water blasting are all processes used in support of GCE, in place at SM-ALC.

(5) ANTENNA SUPPORT: Antenna support at SM-ALC involves in-system testing capability for phased array antennas, such as FPS-117, Anechoic chamber testing on antennas such as the MSQ-118, and antenna manufacture, for antennas such as the spiral antenna used on the ALQ-133, part of Army's Quicklook program. As part of the initial input on antenna design, SM-ALC technicians and engineers have worked with Westinghouse on the antenna development for the TPS-75, an ultra low sidelobe antenna concept. In addition, the military runway at SM-ALC provides an inexhaustible source of live targets for final depot test of repaired or overhauled antennas.

(6) TPS DEVELOPMENT: GCE depot support requires extensive Test Program Set (TPS) development, and SM-ALC has an extensive GCE TPS development facility capable of meeting the demands of supporting complex GCE equipment. Complete TPS's for GCE systems, sub-systems, LRU's, and SRU's are developed at SM-ALC. TPS's developed by SM-ALC include all documentation, software, and interface test adapters. Using techniques such as signature, guided probe, or nodal analysis the TPS will take the technician down to the piece/part level. With TPS development done in the same location as the repair, TPS support is readily available. With GCE systems being modified rather than replaced, TPSs need to be updated, as required. At SM-ALC the TPS engineers work with the repair technicians to accomplish TPS modifications in a timely manner. This consolidated effort results in minimal lag time for support, and a timely audit trail for documenting upgrades to the T.O. system. The success of the TPS capabilities at SM-ALC have garnered customers world-wide: Saudi Arabia and Canada have contracted with SM-ALC for TPS development on their State-of-the-Art GCE systems.

TPS DEVELOPMENT AT SM-ALC (overview)
30,000 square feet of facilities
\$45,000,000.00 capital investment
41 separate ATE systems
72% of personnel have EE degrees

(7) ADVANCED COMPOSITES: The Advanced Composites Program Office (ACPO) was established at McClellan in 1983. The role of this office is to establish a capability to apply ad-

vanced composites technology and then to export this technology to other DoD activities. Work done in advanced composites at McClellan is on the leading edge of this technology. The ACPO provides training to Air Force personnel in 6 major areas: Composite Materials, Basics of Structural Design, Processing/Quality Control, Repair Techniques, Composite Tooling, and Injection Molding of Thermoplastics. The office fully supports Three-dimensional CAD/CAM/CIM, Drafting, Solids Modeling, Finite Element Analysis, Whiffle Design and Five-Axis Numerical Control Programming. The operational test facility is capable of simulating aerodynamic heating (up to 500 F while applying stress. The Thermoplastic Injection Molding Facility can manufacture items with a 500 square inch, single plane surface area and a maximum weight of 20 pounds, clamped with up to 1500 tons of pressure.

(p) The requirements for successful depot activation cross the lines of engineering, planning, logistics and technology. These skills are amassed through training, both formal and on-the-job, and experience. Because of the many issues that go into successful support a GCE system, SM-ALC has a support organization that specifically addresses the following issues of logistic support:

(1) SATAF: As part of the Site Activation Task Force, team members from SM-ALC work towards a successful system turnover. By having technicians on site, future support problems are noted and planned for.

(2) DMAWG: As part of the Depot Activation Working Group, planning is started for adequate depot level support in a timely manner. This way, need for contract maintenance support is minimized, helping the program office stay in budget.

(3) ILSWG: As part of the Integrated Logistics Support Working Group, SM-ALC team members will evaluate data, such as Mean Time Between Failures (MTBF) and the Initial Spares Support List (ISSL). By using their technical background, a comparison is made as to whether the MTBF relates to the ISSL for adequate pipeline spares, and customer support. If not, options such as Spares Acquisition Integrated with Production (SAIP) to be used for TPS development prior to PMRT are recommended.

(4) LSMFT: As part of the Logistics Support Management Fusion Team, all aspects of support, from both the user and depot, are taken into consideration. By working with the customer in this way, a better support base is built.

(5) CRWG: As part of the Computer Resources Working Group, the computer code is evaluated for mission support, and life cycle supportability. As software is an integral part of GCE, the CRWG is a critical path in logistics support.

GROUND COMMUNICATIONS AND ELECTRONICS STUDY

OPTION 3 -- MOVE SAAD AND SM-ALC GCE WORKLOAD TO TOAD

(SAAD ELECTRO-OPTICS MOVES TO ANAD)

APPENDIX (5)

(HOURS IN THOUSANDS)

DEPOT	FY 91 FUNDED WKLD	FY 91 1615 CAP	FY 91 CAPACITY % UTIL	FY 92 FUNDED WKLD	FY 92 1615 CAP	FY 92 CAPACITY % UTIL	FY 93 FUNDED WKLD	FY 93 1615 CAP	FY 93 CAPACITY % UTIL	FY 94 FUNDED WKLD	FY 94 1615 CAP	FY 94 CAPACITY % UTIL	FY 95 FUNDED WKLD	FY 95 1615 CAP	FY 95 CAPACITY % UTIL
SAAD	975	2,394	40.73%	1,113	2,394	46.49%									
TOAD	1,907	3,859	49.42%	2,122	3,859	54.99%	4,263	4,570	93.29%	4,239	4,570	92.76%	4,229	4,570	92.55%
SM-ALC	1,194	1,777	67.19%	1,265	1,777	71.19%									
USMC BAR	206	203	101.67%	170	164	103.38%	169	166	101.57%	170	166	102.17%	181	172	105.07%
USMC ALB	220	213	103.10%	247	238	103.85%	250	238	105.11%	251	240	104.67%	253	240	105.50%
NAD-PH	9	14	64.5%	9	14	65.7%	9	14	65.7%	9	23	38.3%	9	14	65.7%
NAD-JA	1	5	20.4%	1	5	20.4%	1	5	20.4%	1	5	20.4%	1	5	20.4%
NAD-WOR	4	19	20.2%	4	19	21.5%	4	19	21.5%	4	19	21.5%	4	19	21.5%
NESEC SD	16	25	62.9%	18	25	70.7%	19	25	74.7%	21	25	82.5%	23	25	90.4%
NESEC POR	2	4	51.1%	2	4	51.1%	2	4	51.1%	2	4	51.1%	2	4	51.1%
ANAD							101	101	100.0%	101	101	100.0%	101	101	100.0%
TOTALS	4,534	8,513	53.3%	4,951	8,499	58.3%	4,818	5,141	93.7%	4,798	5,153	93.1%	4,803	5,149	93.3%

GROUND COMMUNICATIONS-ELECTRONICS STUDY

Air Force
Input

OPTION III: SM-ALC/SAAD GCE WORKLOAD TO TOAD

1. ASSUMPTIONS:

Based on current data available, the following major assumptions were made:

a. Performance and quality are roughly equivalent at SAAD, TOAD, and SM-ALC.

b. Maximum capacity is defined in terms of direct manhours (1615/person/year X .95) that are calculated based on the maximum number of direct labor personnel that can effectively work in a single shift within the associated shop category.

c. SM-ALC is the only depot being considered with on-base access to a runway, a Military Air Lift Command terminal, a dock and crane in a deep water port, and a rail spur.

d. Transfer of SM-ALC's GCE workload to another location would not result in nor necessitate closure of SM-ALC or McClellan AFB.

2. COST/SAVINGS: (SEE ATTACHED TABLE)

a. There is no cost advantage to moving SM-ALC's GCE workload to TOAD. Over a three year period, the net loss to the government would be \$ 109.5M.

b. Combining SM-ALC's workload with that of SAAD for transfer to TOAD masks the cost data; cost benefit associated with the SAAD move and the exorbitant cost of the SM-ALC move. Therefore, the attached chart breaks out the SAAD and SM-ALC figures separately.

3. WORKLOAD CAPACITY IMPACT:

Transferring SM-ALC workload to TOAD would have an adverse impact on DoD capacity utilization. Although a portion of the SM-ALC GCE facilities could be closed (laid away), the balance of the SM-ALC facilities would need to remain open to perform Space, Avionics, Early Warning and other electronic workloads, and would do so at a reduced capacity utilization.

4. MOBILITY/SURGE/CORE/READINESS IMPACTS:

a. SM-ALC's GCE workload has always been used as a significant contributor to the center's "Critical Mass" (that amount/type of peacetime workload needed to sustain a workforce capable of meeting wartime requirements). Since most GCE is low surge, it is used to offset the center's high surge workloads for wartime planning. Loss of the GCE would lead to a plethora of high surge workload at SM-ALC and thus a surge imbalance.

b. SM-ALC is the primary DoD Inventory Control Point (ICP) and depot for space programs. This is due to the similarity of skill and facility requirements for Ground Communication-Electronics (GCE) workload, which is included in this study, and space component workload, which is excluded from this study. SM-ALC relies heavily on the crossing and sharing of skills between these two workload sets. These can be characterized into two broad categories: Large Radars and Electronic Assemblies.

(1) Large Radars: SM-ALC is the ICP and depot for most large radars in the DoD inventory. Examples include the FPS-117, which is a space system, and the TPN-19 and GPN-22 radars, which are GCE. These systems have many similar components that are repaired by the same Electronic Mechanics using the same facilities and support equipment. The Electronic Engineers and Electronic Technicians may also be the same for certain components. These components include such things as wave guides, receivers, transmitters, and phase shifters. Transferring the GCE from SM-ALC would erode the skills base used for the space systems and would only free-up a minimum of facilities or equipment. These core skills, facilities and equipment must be maintained at SM-ALC for accomplishment of the Space and Early Warning workloads.

(2) Electronic Assemblies: SM-ALC has the most sophisticated facilities for repair and manufacture of electronic assemblies in DoD, and in some cases, in the world. Capabilities include printed circuit board manufacture, VHSIC insertion, fiber optic insertion and repair, nuclear hardness testing and certification, and reverse engineering. These capabilities, as well as the Electronic Mechanics, Engineers and Technicians who repair them, are shared among all of the electronic workloads at SM-ALC, including avionics, space and GCE systems. For example, SM-ALC has a unique capability in the neutron radiography facility that is used to provide an image of the interior structure of printed circuit cards for reverse engineering and manufacture. This facility is also used to test and certify the nuclear hardness of specific components. Removal of the GCE workload from SM-ALC would cause erosion of the skills base used for these other critical technologies. In addition, certain facilities such as the Neutron Radiography facility, do not exist anywhere else in DoD or the world and cannot be relocated from SM-ALC.

c. Many of the GCE systems are software intensive. In order to properly support these systems, ICP responsibilities (primarily sustaining engineering), hardware maintenance, and software support must all be collocated. SM-ALC has extensive software support facilities that meet the collocation requirement and are shared with other electronic programs under the Extendible Integration Support Environment (EISE) concept. Transfer of the GCE workload from SM-ALC would require duplication of these facilities and equipment.

d. SM-ALC's ability to respond to mobilization requirements is augmented by immediate access to all forms of transportation. Air transport is readily available, from both McClellan AFB and Sacramento Metropolitan Airport. SM-ALC has a rail hub, and is at the conjunction of 4 major interstate highways. The city of

Sacramento has a deep water Port and McClellan AFB has a dock with crane at the deep water channel leading to the Pacific Ocean for sea shipments. Depot support response time would be adversely impacted by not having these transportation resources readily available, as would be the case in a workload transfer.

5. POTENTIAL FACILITY LAYAWAYS: Draft layaway analysis results in a computed \$ 43,434 first year savings (see attached spreadsheet).

6. PROS AND CONS:

a. PRO: Increased facility utilization at TOAD.

b. CONS

(1) Transferring SM-ALC's GCE workload to TOAD would be very costly. It would take more than 22 years for the 25 percent (indirect and inter-servicing efficiency) differences to amortize the initial cost of this option.

(2) Removing 1.1 M manhours of direct labor from SM-ALC would increase the overhead rate for remaining workloads.

(3) Removal of this workload from SM-ALC would degrade the skill base needed to support Space and other electronic workloads at SM-ALC.

(4) There will be a duplication of facilities and equipment between SM-ALC and TOAD. Many facilities must remain open to support space and other electronics workloads that SM-ALC would continue to repair in the event of a GCE transfer. Many pieces of equipment must be duplicated to support ICP engineering, software and system integration functions.

(5) Separation of hardware maintenance from software maintenance and Integration Support Facilities is inefficient and will reduce customer support and readiness.

(6) Transferring SM-ALC workload to TOAD would have an adverse impact on DoD capacity utilization. Although a portion of the SM-ALC GCE facilities could be closed (laid away), the balance of the SM-ALC facilities would need to remain open to perform Space, Avionics, Early Warning and other electronic workloads, and would do so at a reduced capacity utilization.

(7) SM-ALC's GCE workload has always been used as a significant contributor to the center's "Critical Mass" (that amount/type of peacetime workload needed to sustain a workforce capable of meeting wartime requirements). Since most GCE is low surge, it is used to offset the center's high surge workloads for wartime planning. Loss of the GCE would lead to a plethora of high surge workload at SM-ALC and thus a surge imbalance.

(8) SM-ALC is the primary DoD Inventory Control Point (ICP) and depot for space programs. This is due to the similarity of skill and facility requirements for Ground Communication-

Electronics (GCE) workload, which is included in this study, and space component workload, which is excluded from this study. SM-ALC relies heavily on the crossing and sharing of skills between these two workload sets. These can be characterized into two broad categories: Large Radars and Electronic Assemblies.

(9) SM-ALC facilities are designed to support very large, low volume system repair. Many items are in depot once every several years. Most other DoD facilities are designed for production line repair of large numbers of smaller items. Transition would be very difficult for a gaining depot activity. The Automated Storage and Retrieval systems at SM-ALC are designed for OMEI-type work. With the floor space and physical weight-bearing capacity to support this effort, SM-ALC can store, track, transport, and manage all levels of GCE workload. Systems at other depots designed for smaller electronics workloads are not applicable to physically large systems, with long lead composite times, and short lead sub-system times. In-depot management of GCE systems during the OMEI (overhaul) phase is critical to timely support. This facility and experience base would be lost with transfer of GCE from SM-ALC.

(10) This alternative would result in the greatest user mission impact. Extensive use of Interim Contract Support will be required to reduce the impact of closing down all Air Force GCE support for the period required to hire and train, and to get facilities and equipment in place that can handle the new workload.

(11) SM-ALC is one of the most significant logistics activities in DoD. This center has developed an extraordinary capability for high-tech diagnostics, repair and manufacturing that exceeds anything else in DoD and, in some cases, is unmatched anywhere in the world (either public or private sector). By transferring SM-ALC's GCE workload to TOAD, use of the most modern electronics depot level repair facility in DoD will be lost to the GCE world.

(a) REVERSE ENGINEERING: The process of Reverse Engineering entails development of specifications, form/fit/function, repair procedures, etc., for a component by component analysis of the chip or circuit card itself. Reverse Engineering is frequently required to develop repair or manufacturing procedures for VHSIC chips, circuit cards and other components for which there is no repair source or data. Often these are parts that have been abandoned by the original manufacturer. There is also the problem of diminishing manufacturing sources for many components. SM-ALC's capability in the area of microelectronics and Very High Speed Integrated Circuits (VHSIC) is unsurpassed in DoD. The Advanced Electronics Technology Center (AETC) at SM-ALC provides a unique and extensive microelectronic technology capability within AFLC. There is a Class 100 clean room and capability to design, develop, and manufacture microelectronics components. SM-ALC has an extensive capability for Reverse Engineering in the area of microelectronics. SM-ALC has the microscopes, CAD/CAM systems, and testers required to duplicate schematics and determine function down to the component level. Using the Neutron Radiography equipment, SM-ALC has the

capability to duplicate multi-layer circuit boards. SM-ALC also has the capability for computer simulation to test the operation of components. SM-ALC also has a VHSIC tester that provides a unique test capability for VHSIC chips. No other DoD agency has the capabilities that SM-ALC has in the area of microelectronics reverse engineering. SM-ALC provides this service to Army and Navy activities. The practice of reverse engineering is not prevalent in industry. There is no company that routinely provides this service. It is unrealistic to assume that these capabilities could be replaced or relocated to one of the existing DoD logistics activities. The Sacramento area has a high proportion of highly skilled electronics and software professionals. These skills are being developed in the Sacramento area as well as being imported from the "Silicon Valley" of the San Francisco Bay area. Many firms are moving into this area, thus providing a breeding ground for skills not found in the requisite numbers elsewhere. SM-ALC has made excellent use of this resource.

MICROELECTRONICS TECHNOLOGY CENTER

13,000 square feet Class 100 clean room \$35,000,000.00 capital investment 36 Electronics Applications Engineers

(b) FWB MANUFACTURE: SM-ALC's printed wire board manufacture facility can manufacture, test, and repair all types of circuit board assemblies found in industry today. Testing is possible from bare board through finished assembly, using Xray and/or ATE, depending on requirement.

PWBA MANUFACTURING AT SM-ALC (overview)

15,000 square feet \$9,797,000.00 capital investment Quality Assurance/Mil Spec Compliance Lab
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PWBA TECHNOLOGIES SUPPORTED

Surface Mount Technology Tape Automated Bonding Circuit On Board	Fine Pitch Technology Multi Chip Module Plated Through Hole
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TYPES OF PWB's MANUFACTURED AT SM-ALC

single sided flex multilayer	double sided ceramic
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(c) NON-DESTRUCTIVE INSPECTION: The Neutron Radiography Non-Destructive Inspection (NDI) facility at McClellan is the largest robotic NDI facility in the world-military or commercial. This facility provides SM-ALC with the unique ability to test and certify the radiation hardness of items requiring this critical capability. A small nuclear reactor is the core of the NDI capability. This capability cannot be moved due to the possibility of contamination from the reactor. The NDI facility is a concrete and steel structure with insulated roof, concrete floors, X-ray and N-ray shielding, heating and ventilating systems, lighting, fire protection, restrooms, and offices.

(d) SHELTERS: Much of GCE is tactical in mission, and accordingly shelterized. SM-ALC has a 203,000 square foot facility solely dedicated to Van & Shelter manufacture and repair. This facility operates in compliance with State and local EPA guidelines, the most stringent in the country. SM-ALC's hazardous material abatement program has achieved a 57% reduction in hazardous material, surpassing the DoD goal of 50% by 1992. Plastic media blasting (as opposed to chemical wash), Cadmium recovery, and high pressure water blasting are all processes used in support of GCE, in place at SM-ALC.

(e) ANTENNA SUPPORT: Antenna support at SM-ALC involves in-system testing capability for phased array antennas, such as FPS-117, Anechoic chamber testing on antennas such the MSQ-118, and antenna manufacture, for antennas such as the spiral antenna used on the ALQ-133, part of Army's Quicklook program. As part of the initial input on antenna design, SM-ALC technicians and engineers have worked with Westinghouse on the antenna development for the TPS-75, an ultra low sidelobe antenna concept.

(f) TPS DEVELOPMENT: GCE depot support requires extensive Test Program Set (TPS) development, and SM-ALC has an extensive GCE TPS development facility capable of meeting the demands of supporting complex GCE equipment. Complete TPS's for GCE systems, sub-systems, LRU's, and SRU's are developed at SM-ALC. TPS's developed by SM-ALC include all documentation, software, and interface test adapters. Using techniques such as signature, guided probe, or nodal analysis the TPS will take the technician down to the piece/part level. With TPS development done in the same location as the repair, TPS support is readily available. With GCE systems being modified rather than replaced, TPSs need to be updated, as required. At SM-ALC the TPS engineers work with the repair technicians to accomplish TPS modifications in a timely manner. This consolidated effort results in minimal lag time for support, and a timely audit trail for documenting upgrades to the T.O. system. The success of the TPS capabilities at SM-ALC have garnered customers world-wide: Saudi Arabia and Canada have contracted with SM-ALC for TPS development on their State-of-the-Art GCE systems.

TPS DEVELOPMENT AT SM-ALC (overview)

30,000 square feet of facilities

\$45,000,000.00 capital investment

41 separate ATE systems

72% of personnel have EE degrees

(g) ADVANCED COMPOSITES: The Advanced Composites Program Office (ACPO) was established at McClellan in 1983. The role of this office is to establish a capability to apply advanced composites technology and then to export this technology to other DoD activities. Work done in advanced composites at McClellan is on the leading edge of this technology. The ACPO provides training to Air Force personnel in 6 major areas: Composite Materials, Basics of Structural Design, Processing/Quality Control, Repair Techniques, Composite Tooling, and Injection Molding of Thermoplastics. The office fully supports Three-dimensional CAD/CAM/CIM, Drafting, Solids Modeling, Finite Element Analysis, Whiffle Design and Five-Axis Numerical Control Programming. The operational test facility is capable of simulating aerodynamic heating (up to 500° F while applying stress). The Thermoplastic Injection Molding Facility can manufacture items with a 500 square inch, single plane surface area and a maximum weight of 20 pounds, clamped with up to 1500 tons of pressure.

(12) The requirements for successful depot activation cross the lines of engineering, planning, logistics and technology. These skills are amassed through training, both formal and on-the-job, and experience. The depot activation team at SM-ALC is synergistic, and this would be lost when workloads are transferred. Because of the many issues that go into successful support a GCE system, SM-ALC has a support organization that specifically addresses the following issues of logistic support:

(a) SATAF: As part of the Site Activation Task Force, team members from SM-ALC work towards a successful system turnover. By having technicians on site, future support problems are noted and planned for.

(b) DMAWG: As part of the Depot Activation Working Group, planning is started for adequate depot level support in a timely manner. This way, need for contract maintenance support is minimized, helping the program office stay in budget.

(c) ILSWG: As part of the Integrated Logistics Support Working Group, SM-ALC team members will evaluate data, such as Mean Time Between Failures (MTBF) and the Initial Spares Support List (ISSL). By using their technical background, a comparison is made as to whether the MTBF relates to the ISSL for

adequate pipeline spares, and customer support. If not, options such as Spares Acquisition Integrated with Production (SAIP) to be used for TPS development prior to PMRT are recommended.

(d) LSMFT: As part of the Logistics Support Management Fusion Team, all aspects of support, from both the user and depot, are taken into consideration. By working with the customer in this way, a better support base is built.

(e) CRWG: As part of the Computer Resources Working Group, the computer code is evaluated for mission support, and life cycle supportability. As software is an integral part of GCE, the CRWG is a critical path in logistics support.

(13) SM-ALC works closely with 5 local area colleges and Universities. Co-op programs for electronics technicians have been established at all the community colleges, and Long Term, Full Time (LTFT) education programs are available to employees at the state colleges and Universities. Consequently, all educational aspects of logistics support are covered, not just one peculiar part. As an example, the direct labor that organically supports the AN/FPS-117, has a minimum education level of a 2 year electronics technology degree (AA) from accredited community colleges.

(14) Tobyhanna Army depot's (TOAD) lack of an immediate air strip will result in a delay in mobilization. Urgent requirements are currently met by airlift. At TOAD, equipment would have to be loaded on trucks, transported to the nearest airport, re-loaded, and airlifted on a scheduled civilian airline. In some cases, where an Air Force C-5 is needed, delay from trucking to the nearest Air Force Base would be unacceptable.

GROUND COMMUNICATIONS AND ELECTRONICS STUDY

OPTION III - TRANSFER SAAD AND SM-ALC GCE WORKLOAD TO TOAD

COST ANALYSIS - AIR FORCE INPUT

(NOTE: Data relates only to movement of SM-ALC workload. Additional costs associated with SAAD should be obtained from the Army for the final report. However, each move should be considered separately to avoid masking the efficiencies or inefficiencies of the other.)

1. RELOCATION OF PRODUCTION EQUIPMENT: The plant equipment located at SM-ALC for use with GCE depot level maintenance was reviewed by SM-ALC engineers and equipment specialists. Only peculiar support equipment was identified for possible transfer. That equipment that was exclusively used for workload identified as a candidate for transfer was evaluated for shipping requirements, with the following results:

TEARDOWN/PACK/UNPACK/SETUP/CALIBRATE	\$3,245,000
SHIPPING	400,000
TOTAL:	\$3,645,000

2. PERSONNEL REDISTRIBUTION: The cost to redistribute SM-ALC's GCE depot maintenance workforce includes the expenses delineated below. Available employment in the Sacramento area is predominantly service oriented. The vast preponderance of industrial jobs are with DoD either at SM-ALC or SAAD. Electronics firms in the area offer predominantly assembly jobs, for which displaced SM-ALC employees would be over qualified. Therefore, it would be at least 24 weeks before most of the displaced employees would find suitable employment. It is also expected that only 5% of the displaced employees would accept offers to transfer to Pennsylvania. It has been our experience that blue collar workers are reluctant to leave the area. Most families are dual-income, and would prefer to operate for 6 months to a year on a single income awaiting suitable employment in the area. No military relocations are expected from SM-ALC.

TOTAL SM-ALC GCE EMPLOYEES:	834
NUMBER OF TRANSFERS:	42 (.05 * 834)
NUMBER SEVERED:	792
UNEMPLOYMENT PERIOD:	24 WEEKS
AVERAGE AGE:	44
AVERAGE YEARS SERVICE:	14
AVERAGE SALARY:	\$33,000
UNEMPLOYMENT COMPENSATION:	\$ 3.612 (683 * 24 * \$190 PER WEEK)
SEVERANCE PAY:	11.979 (683 * \$15,125 PER PERSON)
PCS COST:	1.344 (36 * \$32,000 PER PERSON)
TOTAL COST:	\$16.935

3. CAPABILITY DEVELOPMENT:

a. It is important to note that facilities for C-E commodities are not suitable for Other Major End Item (OMEI) overhaul of

the tactical and fixed site systems that are typical of SM-ALC's GCE workload. Each GCE system has peculiar support requirements. As an example, system test equipment is specifically built for the AN/TPS-43, and is not applicable to other systems. Facilities for this workload include a power pad and shop area designed for TPS-43 support that is not transportable to another facility. These include hazardous material handling and peculiar phase and frequency power requirements.

b. Many of the OMEI systems repaired and overhauled at SM-ALC require a duplicate, dedicated "hot mock-up" system in depot to perform system level testing and to allow testing of engineering and software block changes by the ICP personnel. Having the ICP and depot level repair/ overhaul functions collocated at SM-ALC has allowed the use of a single hot mock-up to perform both tasks. Should the workload transfer to Tobyhanna Army Depot, additional systems would have to be procured for the following systems:

GROUND COMMUNICATION AND ELECTRONICS WORKLOAD REQUIRING DEPOT-DEDICATED SYSTEMS FOR ORGANIC SUPPORT:			
GPN-20	PRC-66	FMQ-12	UPX-14
TPN-19	FPS-8	FPS-77	807B
GRA-111	MSQ-T43	TSC-60	MPS-T1 CV
FPN-62	MPQ-T3	GSN-12	
MPN-14	MPS-9	TSC-107	
TPS-43	MSQ-77	TPQ-43	
TPS-75	MST-T1	VPQ-1	
FPS-6	MPS-19	GPA-133	
FPS-20	GPN-22	GRC-171	
GRN-27	GRN-19A	GRR-24	
GMD-5	GRN-20B	GRT-21	
GRN-29	GRN-12	UPX-6	

It should be noted that given extremely limited inventory of some of these systems, many would not be available at any price.

c. COSTS:

REPLACEMENT OF HOT MOCK-UPS:	\$46,100,000
SPECIALIZED FACILITIES/RENOVATION:	5,300,000
SPECIALIZED TEST EQUIPMENT NOT AVAILABLE FOR TRANSFER (SEE ITEM 1):	3,400,000
TOTAL:	\$54,800,000

4. TRANSPORTATION CHANGE: This analysis is based on Air Force inventory equipment locations for FY91 workloads. It is separated by major system overhaul workloads and exchangeables. Systems will necessitate single ship-ments while, exchangeable components can be shipped in lots. For the purposes of this study, both systems and lot shipments were considered to weigh 5,000 pounds. Routing was based on actual Air Force MAC terminal locations and standard operating procedures. Shipping costs were obtained from the Air Force Directorate of Supply and Transportation at SM-ALC. If Option III were exercised, our analysis indicates that trans-

portation costs would increase by 336.6K dollars per year; or approximately 1.0M dollars over a three year time frame.

Cost for Transportation Change: \$336.6K per year

5. INVENTORY: Electronics supplies used exclusively for SM-ALC's GCE depot level repair and overhaul would be transferred to Tobyhanna. Supplies that are common to other workloads at SM-ALC would be retained at SM-ALC and would have to be duplicated at Tobyhanna.

COST OF RELOCATION:	\$ 400,000
COST OF DUPLICATION:	<u>1,320,000</u>
TOTAL:	\$1,720,000

6. NEW PERSONNEL:

a. Costs associated with this element include recruitment expenses, training costs, ICS during transfer and recruitment phase at TOAD, and productivity loss resulting from new personnel. Extensive training requirements are associated with the type of workload being transferred (specifically the OMEI workload) that currently exists only at SM-ALC. It is estimated that 50% of the new-hires at Tobyhanna Army Depot would require training of this magnitude. An example of training is described below for the TPS-43 Radar:

GCE SKILLS REVIEW TPS-43 Radar Support			
Skills & training	PE's	% of direct labor	
Integrated Systems mechanics (WG-12)	7	25%	
Electronics mechanics systems overhaul (WG-11)	15	54%	
Electronics mechanic MISTR support (WG-08)	6	21%	
TPS-43 direct labor	28	100%	
Formal System training	22	79%	course length: 800 hrs.

b. COSTS:

RECRUITMENT:	\$.253	792 PEOPLE @ \$320 PER PERSON
TRAINING (SALARIES)	5.401	792 * 50% * 800 HRS * \$17.05/HR
TRAINING (TRAINERS)	.683	27,320 INS HRS * \$25.00/HR
ICS COST	32.000	SPM ESTIMATE
PRODUCTION LAG:	4.805	1,138,000 HRS * .25 * \$17.05/HR
TOTAL:	\$43.143	

7. CHANGE IN PRODUCTION COST:

a. The reduction in overhead associated with SM-ALC for Option III is based on the DDMC Sub-Group Rotary Wing Depot Study conclusion that, "Indirect cost savings from consolidation of rotary wing work are approximately 16 percent (number of indirect personnel divided by number of direct personnel identified for separation as a result of consolidation). The 16 percent is based on minimal data points. Sensitivity analysis varying this parameter from 11 percent to 25 percent was conducted and recommended alternatives were relatively insensitive to the variations." Per the Joint Memorandum for the Assistant Secretary of Defense (P&L), 28 Sep 90, an additional nine percent savings should be documented to account for inter-servicing efficiencies.

b. Based on 115 indirect personnel and 16 percent savings, the following applies; .16 of 115 equals 19; 19 multiplied by \$33K equals \$627K savings.

c. Based on 719 direct personnel and a nine percent inter-servicing efficiency reduction, the following applies; 719 multiplied by nine percent (inter-servicing efficiency) equals 65 personnel. Inter-servicing efficiency personnel reduction (65) multiplied by the average annual salary for SM-ALC (\$ 31,211) equals a \$ 2,028,715 savings.

8. COST SAVINGS ON MILCON: Unknown.

9. BASE OPERATIONS SUPPORT (BOS): Zero savings. Any reduction in GCE direct labor at SM-ALC would have an additive effect on remaining direct labor operations (workloads such as aircraft, space, air warning, etc). While decreases in industrial plant utility and maintenance costs would occur, BOS operations which are costed over the entire SM-ALC maintenance complex would cause a net increase to the remaining depot operations. In addition, the SM-ALC utility and maintenance cost decreases would also result in corresponding increases at TOAD.

COSTS/SAVINGS SUMMARY - SAAD & SM-ALC TO TOAD
(DOLLARS IN MILLIONS)

CATEGORY	SAAD	SM-ALC	TOTAL
1. RELOCATION OF EQUIP		\$3.6	
2. PERSONNEL REDISTRIB			
A. UNEMPLOYMENT		\$3.1	
B. SEVERANCE		\$10.3	
C. PCS - CIV		\$1.2	
D. PCS - MIL		\$5.0	
PERSONNEL SUB-TOTAL		\$14.6	
3. CAPABILITY DEVELOPMENT			
A. FACILITIES		\$5.3	
B. EQUIPMENT		\$49.5	
C. TRANSPORTATION		\$1.0	
D. FACILITY MOD		\$5.0	
CAP SUB-TOTAL		\$56.4	
4. TRANSPORTATION CHANGE	\$5.0	\$5.3	\$5.0
5. INVENTORY MOVE		\$1.7	
6. NEW PERSONNEL			
A. PRODUCTIVITY LAG		\$4.8	
B. RECRUITMENT		\$5.2	
C. TRAINING		\$5.4	
D. PROD SHUTDOWN COST		\$30.2	
NEW PERS SUB-TOTAL	\$5.0	\$40.6	\$5.0
7. CHANGE IN PROD COST			
A. INDIRECT		\$-5.6	
B. INTER-SERVICING		\$-2.0	
CHANGE SUB-TOTAL		\$-2.6	
8. COST SAVINGS MILCON		\$5.0	
9. CHANGE IN BOS		\$5.0	

	<u>93</u>	<u>94</u>	<u>95</u>	<u>TOTAL</u>
COSTS	116.6	.3	.4	117.3
SAVINGS	(2.6)	(2.6)	(2.6)	(7.8)
TOTAL	114.0	(2.3)	(2.2)	109.5

GROUND COMMUNICATIONS-ELECTRONICS STUDY

OPTION III - MOVEMENT OF GC&E FROM SAAD AND SM/ALC TO TOAD

I. ASSUMPTIONS

- a. Sacramento Army Depot will close with GC&E workload primarily transferring to Tobyhanna Army Depot.
- b. The Sacramento Army Depot electro-optics workload will transfer to Anniston Army Depot.
- c. SM/ALC GC&E workload will transfer to TOAD.
- d. The Army workload was derived from the Budget Strat for FY91-93. FY94 and FY95 workload was straight-lined from FY93. Reimbursable workload was based on historical data.
- e. SM/ALC workload data was provided by SM/ALC representatives.
- f. Workload was not decremented based on a declining defense budget.
- g. Maximum capacity is defined by 1615 direct labor man-hours per year x the number of work positions x .95 and are calculated based on the maximum number of direct labor personnel that can work a single shift.

II. WORKLOAD CAPACITY/IMPACT

- a. Since these workload transfers occur in FY93, TOAD's total capacity will be sufficient to absorb both the SAAD and SM/ALC workloads while still leaving adequate surge capacity/capability.
- b. Tobyhanna Army Depot's total capacity will increase to 6.1 million man-hours with GC&E capacity of 4.6 million man-hours in FY93. This increased capacity is attributable to two congressionally approved military construction projects; e.g. a 178,000 square foot Communications Security (COMSEC) Facility and a 67,000 square foot Satellite Communications Mission Facility.
- c. In computing capacity, it is important to recognize that GC&E is a theoretical sub-category of the C-E commodity group. In practice, there is much commonality between the two. The same types of personnel skills, test equipment, and workplace are required to support C-E workload. For these reasons, GC&E capacity and C-E capacity can be considered the same.

III. COST SAVINGS

- a. Transfer of SAAD's and SM/ALC's workload to TOAD results in a DOD savings of \$232,478,000 during the period FY93-95. Tobyhanna Army Depot's substantially lower operating costs are reflected in its highly competitive bid rate (lowest in the U.S. Army Depot System Command) which easily overcomes the one-time costs incurred by the SAAD and SM/ALC closure.

- b. Tobyhanna's competitive bid rate equates to a lower operating

structure, productivity/ management initiatives and the distribution of a large man-hour base across a low stabilized overhead cost. Further reduction of the bid rate will occur when SAAD and SM/ALC workload are assumed.

c. * One time transportation expenses for movement of SAAD's and SM/ALC's production equipment to TOAD are included in the cost analysis. However, analysis through a transportation model developed by TOAD provides a yearly savings of \$6,084,000 based on a global distribution of DOD units. This model projected transportation requirements based on Army population in each of 12 geographic worldwide. Shipment costs were based on standard profiles and costing data made available from the Military Traffic Management Command. The results of the model indicate substantial transportation savings since 65 percent of all customers are located closer to TOAD.

d. Transition of the electro-optics workload to ANAD could be accomplished through a planned phased-in thereby reducing or eliminating the transition costs associated with interim contractor support.

e. One-time military relocation costs could be further reduced or eliminated if normal rotations are scheduled to coincide with the planned depot closure. Currently SAAD has nine military positions associated with the GC&E workload.

f. Personnel separation costs solely attributable to the SAAD closure and SM/ALC workload transfer can be reduced below the estimate used in this study if the DOD build down continues between now and the FY93 projected closure/transfer.

IV. MOBILIZATION/SURGE/CORE/READINESS/IMPACT

a. Since these workload transfers will occur in FY93, TOAD will have the capacity to accommodate SAAD and SM/ALC workload while still retaining the ability to respond to any mobilization requirements.

b. Tobyhanna Army Depot has a newly constructed high technology Reserve Component Training Facility for the Army. Transfer of the SAAD and SM/ALC workload would enable that training facility to expand its range of MOS training offered to Reserve Component and National Guard members. Tobyhanna is at the center of a 500 mile radius which represents the greatest density of Reserve Component population in the world.

c. Tobyhanna is strategically located near eastern ports, overseas, air terminals, the metropolitan areas of New York City and Philadelphia, major interstate highways, railroads, and airports. Analysis of east coast/west coast transportation routes shows that TOAD's location provides shorter access to the Persian Gulf and the European Theatre, and the majority of Army equipment users, thereby reducing turnaround time and maintenance float requirements. Both of these factors contribute to increased readiness of Army units.

d. Readiness to the Army will be enhanced because of the consolidation of workloads. This is due to the following:

- (1) Availability of a larger electronic skill base capable of supporting all CE commodities.
- (2) The commonality of repair parts and test equipment.
- (3) Reduced transportation time due from the proximity of users.

e. The SAAD and SM/ALC to TOAD option would clearly satisfy the Army's and the Air Forces's "core" requirements.

f. This workload would be efficiently transitioned to TOAD with no disruption in customer services due to a phased-in approach and advance preparation at the gaining installation.

g. Tobyhanna can reacquire 19,800 acres of adjacent land for expansion purposes in the event of any national emergency.

V. POTENTIAL LAYAWAY

Potential layaway of buildings at SAAD for mobilization would result in the retention of 201,828 sq. ft. of work space and a savings of _____. Depot plant equipment which has not been transferred to TOAD could remain onsite and be included in the layaway.

VI. PROS AND CONS

a. Consolidation of all of CC&E workload at TOAD will result in a DOD Center of Technical Excellence for Communications-Electronics. The overall level of expertise would be greatly enhanced since all skills associated with C-E would be available at one location, thus facilitating technology sharing and creating a wider base of electronics knowledge. All of the depot's engineering skills would be singularly devoted to C-E, without the dilution of focus inherent in multi-commodity scenarios. This action will eliminate a significant duplication of facilities that presently exist within DOD. Industrial plant utilization rates will increase at all depots that receive transferred maintenance workload, and the utilization rates of depot maintenance facilities as an entire system will also increase due to the reduction in the overall capacity base.

b. This option allows DOD overall to take advantage of the significantly lower operating costs at TOAD rather than SAAD and SM/ALC—thus executing the work at a \$232,478,000 savings over a 5-year period.

c. Tobyhanna will receive the largest portion of DOD's CC&E workload. Automated maintenance systems such as the Maintenance Shop Floor System and the Automated Storage and Retrieval System which are modern state-of-the-art information and material delivery systems to support this workload are already operational at TOAD.

d. Tobyhanna is engaged in cooperative ventures with many higher educational institutions to perform applied research in the depot's industrial setting thus applying the latest technology to enhance on depot productivity and manufacturing. Applications include surface mount technology testing, artificial intelligence, and laser welding, with Penn State, Lehigh, Wilkes College, and the University of Scranton.

e. Tobyhanna Army Depot's Environmental Stress Screening facility is the largest such testing facility in the Department of Defense. It consists of 12 temperature chambers and 5 vibration tables. Each chamber has a 48 cubic foot capacity and can undergo temperature changes of up to 20 degrees centigrade per minute, within the range of -73 to 173 degrees centigrade. The vibration tables are capable of 6000 force pounds for a bandwidth of 20 to 2000 hz. By exposing modules of components to variations in temperatures and vibration, marginal or defective components can be isolated and replaced to provide more reliable equipment. As a result of Desert Shield, we are processing all VRC-12 radios through this facility, thereby, increasing the radio's reliability in the harshest climate of the Persian Gulf.

f. Also located at TOAD is a large laboratory for simulation of weather/environmental conditions throughout the world. Because of the unique rain chambers, infrared ovens, altitude tester and other specialized equipment at the facility, materials can be tested against the requirements of desert, rain forest, arctic, and other harsh climates. Also available is shock, compression, and impact test equipment.

g. Tobyhanna was an early leader in the field of Test Program Sets (TPS) within DOD. Today it reaps the benefits of those 25 years of experience. The depot is the TPS Support Facility for the Depot System Command (DESCOM); providing all ATE/TPS related support services to the Communications Command (CECOM) and Army elements throughout the world. The support includes all aspects of ATE, TPSSs, ATE hardware/software, standards and Configuration Management and Control. Technical assistance is provided to major subordinate commands (MSCs) and Project Managers including should cost studies and final acceptance of contractor prepared TPSSs. Tobyhanna Army Depot also maintains (in a newly constructed environmentally controlled building) the TPS Repository for the depot and CECOM. Responsibilities of the TPS Repository consist of life cycle configuration control; storing of TPS files, resources and media; reproduction, assembly, test and worldwide distribution, data links, processing of engineering changes proposals (ECPs) and over-the-counter issue.

h. Tobyhanna has the largest engineering department of any Army depot and includes a Production Design & Development Branch giving TOAD the capability to design, manufacture & integrate new electronics assemblages for all services. This unique Special Fabrication mission has made TOAD the largest supplier of C-E shelters for DOD. A 22-workstation state-of-the-art Computer Aided Engineering (CAE) System provides advanced capabilities such as solids modeling, hidden line removal, finite element analysis, numerical control data generation, and automatic printed circuit board placement, routing, and simulation. In addition static and dynamic response analysis enable TOAD to avoid destructive testing of systems. Drawings are automatically produced, modified, and verified. Bills of Material and CMC program tapes are also electronically generated.

i. Since 1975, TOAD has been responsible for providing satellite communications systems for the Tri-Services, White House, and NATO Signatories. TOAD provides support for both strategic and tactical satellite systems. By virtue of TOAD's experience and expertise in the field of satellite communications and involvement with the Space Technology Working Group, the depot was selected as CTX for Space Communications. TOAD maintains the engineering test bed for Satellite Digital Communications Subsystems (DCSS) for the Defense Satellite Communications Systems. TOAD has designed and built the majority of DCSS sites worldwide.

j. Maintenance Support Facilities/Capabilities

(1) Tobyhanna Army Depot performs complete repair/overhaul for a variety of GCA, surveillance, interrogator, weather and mortar locating radar Systems. Maintenance services include overhaul modification, and upgrade and performance testing to original manufacturing specifications. Furthermore, technical support is provided by an experienced staff of professional engineers who possess a high degree of expertise in the area of radar technology.

(2) In addition, TOAD operates two Radar Antenna Pattern Ranges. These ranges give TOAD the capability to align and test many types of radar antenna. Using a sophisticated AZ over EL over AZ Test Pedestal, the Radiation Patterns, in the form of Amplitude vs. Azimuth plots, in any axis as required, are calculated and hard copies are produced by chart recorders. Axis include the horizontal, vertical, and the rotor used in the AN/MPQ-4A Mortar Locating Radar System. Horizontal and Circular Polarization mode adjustments are done onsite and the antennas are retested. Once complete these antennas are put in optimum optical, mechanical and electrical calibration before being returned to the radar system for final operational testings.

(3) The radar systems that have antennas tested at these ranges are:

AN/TPN-18/18A Radar

AN/FPN-40 Radar

AN/FSQ-84/84A Radar

AN/TSQ-71B Air Traffic Control Central

AN/TPX-41/44/46 Interrogator

AN/MPQ-4A Mortar Locating Radar

(4) Tobyhanna performs final operational tests on all of the above mentioned Ground Control Approach Radars on our live target range. This includes conducting final precision approach of the overhauled radars with an aircraft to 300 ft. AGL. Accuracy of the radar is verified using a theodolite which has a .02 degree resolution. The surveillance modes and communication capabilities of these systems are checked during the flight test. This unique capability ensures high quality radar systems are fielded to Army aviation units.

k. Environmental Considerations - Tobyhanna Army Depot and SAAD environmental management programs operate all missions and related activities in compliance with state and federal regulatory requirements. A new state-of-the-art hazardous material storage facility is operational at TOAD. Tobyhanna's environmental initiatives include use of high volume, low pressure spray paint equipment in order to minimize VOC emissions and paint waste. New methodology in plating has minimized waste within this process. Alumina oxide grit has been replaced by zirconia alumina grit to reduce waste in the blasting process. Presently, extension of paint filter life and conversion of water curtain booths to dry filters are under study. Tobyhanna has designed a cradle-to-grave tracking system for hazardous waste/materials. This system is in process of final test prior to implementation. At the present time 40 percent of the total waste generated is recycled with initiatives in place to increase this capability.

l. With the constrictions of the fiscal year 91 congressionally approved MILCON a communications security building, TOAD will have the largest COMSEC facility in DOD and will be capable of supporting all services workload.

m. Tobyhanna has a demonstrated ability to provide rapid, onsite technical assistance to its many customers throughout the world. An entire organizational element within TOAD is devoted to this critical function, traveling to CONUS and OCONUS sites as needed. In FY90, 17,808 man-days of effort was expended on the road in such diverse locales such as Cuba, Panama, Norway, United Kingdom, Italy, Puerto Rico, Australia, Turkey, Germany, Japan, and Korea.

n. Tobyhanna is considered the pre-eminent employer in Northeastern Pennsylvania. This is reflected in the fact that 5,000-6,000 employment inquiries are received annually; the 7.2 percent unemployment rate in the surrounding communities; and the depot's average annual salary (\$24,690) which compares favorably to the local average salary for manufacturing industries (\$20,280). Additionally, past experience demonstrates TOAD's ability to hire the required number of skilled personnel. In Jun 89, TOAD requested an OPM register for 100 WG-08 Electronics Mechanics Worker positions. Within weeks, 264 qualified candidates were referred for hire. The Veteran's Readjustment Act (VRA) authority has recently been expanded to allow employment of post-Viet Nam era vets. Since the program's inception, e.g., 69 percent of the total work force are veterans. Other factors which support TOAD's recruitment ability are the local schools which offer specific electronics curriculum; e.g., Lincoln Technical, Johnson School of Technology, Luzerne Community College, and three Penn State campuses. Additional technical expertise is available through local universities and high tech centers e.g., Ben Franklin Program at Lehigh University. In addition, Pennsylvania Industrial Resource Council, Northeastern Pennsylvania Manufacturers Association, Research Assistance Program with Wilkes College, etc. Mobilization analysis completed by TOAD's Civilian Personnel Division confirms this ability to favorably react to, and exceed, a large hiring requirement across the range of required skills.

o. Fiber Optics

(1) Tobyhanna has established repair/overhaul capability to support Fiber Optic workload. Specialized equipment necessary to manufacture/repair/overhaul fiber optic cable assemblies is in place. Equipment available includes a fusion splicer, optical time domain reflectometer (OTDR), cutting and polishing machines, optical attenuation test sets, and associated tools. Tobyhanna is presently fabricating new and/or upgrading through technology insertion previously built systems which use fiber optics extensively. These fabricated systems include: The Defense Satellite Communications System - Operations Control System (DOCS); the Digital Group Multiplexer for FM Multi-Service Communications System (AN/-173, AN/TRC-174, AN/TRC-175, and AN/TRC-138A); and the Remote Relay System AN/TSQ-144 (Guardrail V); Corps Theatre Automated Service Center II; (CTASCI); Relocatable Army Processors for Intelligence Data Europe (RAPIDE); and Mobile Battle Management Demonstrator.

(2) Tobyhanna designed, manufactured and completed systems integration of 30 AN/TSQ-146 Digital Group Multiplexer (DGM) shelter systems for the Air Force. This effort included fabrication, test, technical manual preparation and provisioning.

p. Satellite Communications - Tobyhanna Army Depot provides the following support services to Project Manager Satellite Communications (PM SATCOM).

(1) Organic Depot Level Maintenance (DLM) - TOAD serves as the prime mission depot providing DLM repair/overhaul support for virtually all SATCOM Strategic, Tactical and Control systems. As the prime mission depot, TOAD supports approximately 25 unique major Satellite Terminals and over 2,100 Line Replaceable Units (LRUs), Subassemblies and modules. Several specific examples include:

(a) Ground Mobile Forces (GMF) Satellite Terminals such as the AN/TSC-85/93, Air Force AN/TSC-94/100, AN/GSC-40 Combined Ground Command Post Terminal and AN/MSQ-64 Force Terminal.

(b) Strategic Satellite Terminals to include the AN/FSC-78/79, AN/GSC-39, AN/GSC-49 Jam Resistant Secure Communications (JRSC) Terminal and the Digital Communications Satellite Subsystem (DCSS).

(c) AN/MSQ-114 Satellite Communications Monitoring and Control Central and subsystems of the Defense Satellite Communications System Operational Control System (DOCS).

(d) Future DLM workload includes the AN/GSC-52 State-of-the-Art Medium Terminal (SAMT), Single Channel Objective Tactical (SCOTT), Anti-Jam Control Modem (AJCM) and OM-73 Digital Data Modem.

(2) Design and Development and Manufacturing - TOAD serves as the prime system integrator for the DCSS. Our mission includes engineering design, fabrication, integration and testing of complex state-of-the-art systems deployed worldwide. Examples include the AN/MSQ-66 DCSS Van, AN/MSQ-74 Operations (OPS) Van and approximately 74 unique electronic racks and interfaces.

(3) Test Program Set (TPS) Development and Acceptance - Tobyhanna has developed a variety of TPSs to support SATCOM mission requirements and is presently negotiating future requirements. In addition, TOAD provides technical assistance and guidance to PM SATCOM and CECOM during the acceptance of contractor developed TPSs.

(4) Technical Assistance and Site Installations

(a) Tobyhanna provides emergency on-site technical assistance to SATCOM sites located worldwide. In addition, corrective assistance is provided to site personnel via telephone through use of unique SATCOM test and facility at TOAD. Field problems can be duplicated and resolved through use of this system.

(b) Tobyhanna has performed numerous site installations and modifications/upgrades to support SATCOM mission requirements. The depot is currently negotiating requirements for TOAD to install nearly 400 Anti-Jam Control Modems at GME Satellite Terminals deployed worldwide. Tobyhanna is also scheduled to incorporate the Single Channel Transponder Receiving Set (SCTR) at approximately 114 sites.

(c) Tobyhanna provides orientation training/instruction, consisting of both theoretical and "hands-on" training to personnel at various sites and at TOAD. Prior to fielding of SATCOM systems, personnel from gaining installation travel to TOAD to receive technical training and hands-on experience with their equipment, thus ensuring smooth transition to the customer.

(5) Integrated Logistic Support (ILS) - TOAD's activities span the entire ILS function to include development and evaluation of Integrated Logistics Support Plans (ILSPs); validation, verification and development of numerous test procedures and specifications; and provisioning functions.

(6) TOAD's major fabrication effort for the SATCOM Program included the manufacturing and fielding of approximately 4,400 electronic equipment racks to 104 sites deployed worldwide. As a future modernization initiative a SATCOM Mission Facility will provide over 43,200 square feet of floor space to support overall SATCOM mission workload requirements.

g. Fire Control and Battlefield Automation - Tobyhanna Army Depot's support services to CECOM, MICOM, Foreign Military Sales, and other services include depot's repair/overhaul, modification and field support of the U.S. Army Tactical Fire Control and Battlefield Automations Systems. The following is a listing of the primary systems supported:

- AN/TSQ-73 Missile Minder System
- AN/GSG-10 Tactical Fire Control System (TACFIRE)
- AN/GYX-29 Battery Computer System (BCS)
- OD-144 Gun Display Unit (GDU)
- AN/PSG-2A/B Digital Message Device (DMD)
- AN/PSG-5 FIST-DMD
- M-23 Mortar Ballistics Computer
- AN/GSC-21 Variable Format Message Entry Device (VFMD)
- AN/TSM-141 TACFIRE Maintenance Support System

r. Tobyhanna also has its own in-house Technical Training School (Toby Tech) with 7 full-time instructors providing instruction in soldering, basic math, specialized test equipment, digital electronics, linear and digital integrated circuits to name a few. Tobyhanna has its own in-house 4-year Apprentices Program in electronics and metal trades. Employees enter the program as trainees and graduate as full-fledged journeymen. This was the first Department of Labor approved Electronics Apprentices Program within DOD.

s. The Center of Technical Excellence (CTX) concept was created within DESCOM to assure complete integration of the depot industrial base in support of the total acquisition life cycle. Under this concept, individual depots are designated as the CTX for selected major new weapon systems and must then provide intensive logistics management of the new system from inception thru fielding. Based on TOAD's capabilities and technical expertise, it is currently assigned 12 CTX programs - the most of any depot within DESCOM.

t. Total Quality Management - Tobyhanna Army Depot has always been recognized for its progressive and innovative management initiatives throughout the Army. In 1988 the depot committed itself to the implementation of TQM. The process began with a rigorous training program for all senior level managers. This included mandatory sessions by the Federal Quality Institute, Deming Seminars, Statistical Process Control Classes, and a host of other training that provided a common language for management. The efforts have set the stage for a number of process improvements. One of the depot's most critical processes, the acquisition cycle, was dissected and analyzed to identify and implement improvements through a Process Action Team. In addition to these formal process improvements, numerous experiments are being conducted within the Supply and Contracting arenas. To further develop our continuous improvement ability a TQM/Customer Relations session is taught monthly to the depot workforce. The TQM efforts and those of the depot's Quality Circles have been integrated to ensure a common direction.

u. In cooperation with East Stroudsburg University, VIASAR (Voice Interface for Automated Storage and Retrieval) has reduced material handling, keypunch errors contributing to increased productivity. VIASAR removes the need for stationery process stations allowing workers to move freely to the workload, induct data and correct errors immediately. Data is inducted via voice input and errors are isolated and reported via voice output eliminating labor intensive tasks by operators.

v. Printed Circuit Board Manufacturing - Tobyhanna Army Depot has the capability to fabricate single and double-sided Printed Circuit Boards (PCBs). Features of this operation include: a central reproduction area with imaging systems, state-of-the-art PCB fabrication equipment, component assembly workstations, and MIL-P-55110 test and inspection stations. Equipment necessary for manufacture of multi-layer printed circuit boards is presently being acquired. The design of PCBs is done with a Computer Vision Computer Aided Engineering System, allowing the efficient production of a Level III Drawing Package and any required Technical Manuals. Testing of the completed PCBs is accomplished with utilization of Automatic Test Equipment (ATE).

w. Tobyhanna Army Depot has supported Federal, State and local law enforcement agencies in their drug interdiction efforts for nearly 5 years, and has special accounts established to provide technical expertise, field support, maintenance and storage of ground sensor surveillance systems owned by the U.S. Customs Service and U.S. Marine Corps and loaned to the Office of National Drug Control Policy (ONDCP). Tobyhanna is also a major contributor to the joint Federal, State and local law enforcement program known as Operation Alliance, whose eradication of illegal drug trafficking in the United States. Tobyhanna stores, maintains, overhauls, and installs a large variety of highly complex sensor systems capable of detecting metallic, acoustic and seismic intrusions across U.S. borders. Training of appropriate law enforcement officials in the proper operation of this equipment is also the prime responsibility of TOAD personnel. Since 1986, Tobyhanna has also overhauled and repaired a large volume of sensor equipment in support of the President's War on Drugs, and has assisted numerous Field Narcotics Officers in the placement of ground sensor equipment along the borders of the United States.

x. The depot's 24-hour customer assistance recorder or "Hotline" established in 1982 provides prompt and accurate information or assistance to Armed Forces personnel, both Active Duty and Reserve and their civilian counterparts. This service can be accessed via the Army-wide Defense Switched Network (DSN) or commercially and provides an integral link between the depot and the soldier in the field. It is widely recognized as a quick and reliable source of help.

y. Interservicing would be significantly increased for the Air Force if this option were approved.

GROUND COMMUNICATION-ELECTRONICS STUDY
IMPACT OF MOVING SAAD AND SM/A/C TO TOAD
DOLLARS IN THOUSANDS

TAB	COST ELEMENT	FY91	FY92	FY93	FY94	FY95	COST
1.	RELOCATION OF PRODUCTION EQP						
	TSC			7.925			7.925
	SHIPPING			.112			.112
2.	PERSONNEL REDIST						
	UNEMP COMP			3.173			3.173
	SEVERANCE			15.879			15.879
	PCS-CIV			16.889			16.889
	PCS-MIL			.108			.108
3.	CAPABILITY/DEV						
	CONSTRUCTION			4.500			4.500
	TRANSITION			1.476			1.476
	CLOSE DOWN			.056			.056
4.	TRANSPORTION CHG			(6.084)	(6.084)	(6.084)	(18.252)
5.	INVENTORY			.577			.577
6.	NEW PERSONNEL						
	PRODUCTIVITY LAG			5.929			5.929
	RECRUIT EXP			.257			.257
7.	CHG IN PROD COST						
	OVERHEAD/DIFF			(41.108)	(41.108)	(41.108)	(123.324)
	SALARY			(43.561)	(43.561)	(43.561)	(130.683)
8.	COST SAVINGS MILCON			(3.900)			(3.900)
9.	BASE OPERATION SUPP			(4.400)	(4.400)	(4.400)	(13.200)
	YEARLY COST			56.881			56.881
	YEARLY SAVINGS			(99.053)	(95.153)	(95.153)	(289.359)
	DELTA			(42.172)	(95.153)	(95.153)	(232.478)

ARMY PACKAGE: CONSOLIDATE SAAD AND SM-ALC GROUND C-E AT TOAD.

ELEMENTS OF COST:

1. RELOCATION OF PRODUCTION EQUIPMENT. THE PLANT EQUIPMENT CURRENTLY LOCATED AT SAAD WAS LISTED AND IDENTIFIED TO TOAD FOR REVIEW. IN A METHODICAL APPROACH, TOAD FIRST ANALYZED THE CURRENT SAAD WORKLOAD AND DETERMINED WHICH PIECES OF EQUIPMENT EACH PROGRAM REQUIRES. NEXT, EXCESS TOAD MACHINE CAPACITY WAS FILLED WITH SAAD WORKLOAD WITH THE REMAINING WORKLOAD BEING QUANTIFIED AGAINST THE LISTING OF SAAD EQUIPMENT. FINALLY, DESCOM ENGINEERING CALCULATED THE COSTS OF DISASSEMBLYING, PACKAGING, TRANSPORTING, UNPACKAGING, REASSEMBLYING, AND CALIBRATING THE EQUIPMENT SELECTED FOR TRANSFER FROM SAAD TO TOAD. TRANSPORTATION RATES AND EQUIPMENT HANDLING COSTS WERE OBTAINED FROM THE MILITARY TRAFFIC MANAGEMENT COMMAND AND ENGINEERING SOURCE REFERENCES. THE COSTS TO RELOCATE THE NIGHT VISION - ELECTRO OPTICS EQUIPMENT, CURRENTLY LOCATED AT SAAD, TO ANAD WERE CALCULATED IN THE SAME MANNER.

TO RELOCATE SELECTED EQUIPMENT FROM SAAD TO TOAD, \$ 2,569,000 WOULD BE NEEDED FOR TEARDOWN/PACK/UNPACK/SETUP/CALIBRATE AND \$ 39,000 WOULD BE REQUIRED TO COVER ACTUAL SHIPPING CHARGES. FOR THE MOVE FROM SAAD TO ANAD, TEARDOWN/PACK/UNPACK/SETUP/CALIBRATE WOULD SUM TO \$ 1,267,000 WITH SHIPPING COMING TO \$ 14,000. TOTAL COST TO REDISTRIBUTE THE SAAD GROUND COMMUNICATIONS AND ELECTRONICS EQUIPMENT WOULD BE \$ 3,889,000.

IN RESPECT TO THE SM-ALC EQUIPMENT, THE AIR FORCE VALUED THE EQUIPMENT RELATED TO GROUND COMMUNICATIONS AND ELECTRONICS AT \$ 58.3 MILLION. USING THE RATE DEVELOPED BY ARMY ENGINEERING FOR THE SAAD EQUIPMENT TRANSFER, THE COST TO TEARDOWN/PACK/UNPACK/SETUP/CALIBRATE THE SM-ALC EQUIPMENT WOULD BE \$ 4.09 MILLION. LIKEWISE, AN APPLICATION RATE WAS DEVELOPED BY COMPARING THE COST TO RELOCATE THE TOAD PORTION OF THE SAAD EQUIPMENT TO THE VALUE OF THE EQUIPMENT DESIGNATED BY THE AIR FORCE AS RELATED TO GROUND COMMUNICATIONS AND ELECTRONICS RESULTING IN AN ESTIMATED SHIPPING COST OF \$ 59,000. THEREFORE THE COST TO RELOCATE THE SM-ALC EQUIPMENT TO TOAD WOULD BE \$ 4.149 MILLION.

2. PERSONNEL REDISTRIBUTION. THE COST TO REDISTRIBUTE SAAD PERSONNEL INCLUDES THE ASSOCIATED EXPENSE OF UNEMPLOYMENT COMPENSATION, SEVERANCE PAY, PERMANENT CHANGE OF STATION (PCS) FOR CIVILIANS, AND PCS FOR MILITARY. UNEMPLOYMENT COMPENSATION AND SEVERANCE PAY WERE CALCULATED FOR 434 SAAD EMPLOYEES, AVERAGE AGE 45 YEARS WITH 14 YEARS SERVICE AND AN AVERAGE SALARY OF \$ 33,000, BEING SEPARATED. THESE EMPLOYEES WERE JUDGED TO BE HIGHLY SKILLED AND LOCATED IN A COMPATIBLE, RAPIDLY EXPANDING, LABOR MARKET. THEREFORE, SEPARATED EMPLOYEES WERE ASSUMED TO BE WITHOUT A FULL TIME JOB FOR THE PERIOD OF 12 WEEKS. THE 958 SM-ALC WORKERS BEING DISPLACED WERE ASSUMED TO BE IN THE SAME LABOR MARKET CONDITIONS AND TO BE COMPARIBLE TO THE SAAD WORKFORCE IN TERMS OF AGE, SERVICE, AND AGGREGATE SALARY.

FOR SAAD WORKERS, UNEMPLOYMENT COMPENSATION PAYMENTS WERE CALCULATED AT \$ 190.00 PER WEEK FOR 12 WEEKS FOR 434 SEPARATED EMPLOYEES FOR A COST OF \$ 989,520. LIKEWISE, SEVERANCE PAY FOR SAAD WORKERS WAS DETERMINED FOR 12 WEEKS TO EQUAL \$ 11,411 PER PERSON BASED ON AVERAGE AGE, SERVICE TIME, AND CURRENT PAY FOR A TOTAL COST OF \$ 4,952,374.. THOSE EMPLOYEES ELIGIBLE FOR PCS DUE TO A TRANSFER OF MISSION OR PRIORITY PLACEMENT RIGHTS TOTAL 364 CIVILIANS EQUATING TO \$ 9.7 MILLION. MILITARY RELOCATIONS ASSOCIATED WITH MAINTENANCE ARE 9 FOR A TOTAL COST OF \$ 128,000; HOWEVER, THIS EXPENSE COULD BE REDUCED IF NORMAL ROTATIONS ARE SCHEDULED TO COINCIDE WITH THE PLANNED DEPOT CLOSURE.

TO COST THE DISPLACED WORKERS AT SM-ALC, THE SAME CALCULATED COSTS PER EMPLOYEE WERE APPLIED USING THE SM-ALC ASSUMPTION THAT 80% OF THE ASSOCIATED WORKERS WOULD BE SEPARATED WITH THE REMAINING 20% BEING TRANSFERRED. FOR UNEMPLOYMENT COMPENSATION, 575 DIRECT AND 383 INDIRECT EMPLOYEES RELATED TO THE GROUND COMMUNICATIONS AND ELECTRONICS WORKLOAD WERE COSTED TO A TOTAL OF \$ 2.183 MILLION. THE SAME NUMBER OF WORKERS WERE COSTED FOR SEVERANCE PAY PROJECTED TO TOTAL \$ 10.931 MILLION. TO PCS THE REMAINING 20%, 144 DIRECT AND 96 INDIRECT DISPLACED EMPLOYEES WERE COSTED AT \$ 30,000 EACH FOR \$ 7.2 MILLION. NO MILITARY PCS REQUIREMENTS WERE IDENTIFIED BY SM-ALC.

3. CAPABILITY/DEVELOPMENT. TO CLOSE SAAD, A \$ 4.5 MILLION RENOVATION OF A WAREHOUSE WOULD BE REQUIRED FOR THE NIGHT VISION - ELECTRO OPTICS REPAIR FACILITY AT ANNISTON ARMY DEPOT. TO ENSURE ARMY READINESS DURING THE TRANSFER OF WORKLOAD FROM SAAD TO TOAD, CERTAIN REPARABLES COULD REQUIRE SHORT TERM CONTRACTOR SUPPORT. THE ADDITIONAL COST OF PLACING 48,328 DIRECT LABOR HOURS OF NIGHT VISION - ELECTRO OPTICS WORKLOAD ON NATIONAL MAINTENANCE CONTRACT FOR SIX MONTHS IS APPROXIMATELY \$ 1.5 MILLION. ARMY IS CURRENTLY STUDYING HOW TO ACCELERATE THIS WORKLOAD PRIOR TO CLOSURE TO AVOID SAID COST. TO MOVE GROUND COMMUNICATIONS AND ELECTRONICS FROM SAAD WOULD RESULT IN SEVERAL RELATED DEPOT FACILITIES BEING CLOSED AT A COST OF \$ 56,448.

THE TRANSFER OF THE SM-ALC WORKLOAD TO TOAD WOULD NOT GENERATE CONSTRUCTION OR MAJOR RENOVATIONS REQUIREMENTS. NO TRANSITION COSTS WERE PROJECTED. THE AIR FORCE MAINTAINS THAT TRANSFERRING THE GROUND COMMUNICATIONS AND ELECTRONICS WORKLOAD TO TOAD WOULD NOT RESULT IN THE CLOSURE OF SM-ALC FACILITIES AND THEREFORE SUCH COSTS WERE AVOIDED.

4. TRANSPORTATION CHANGE. WHILE THE ARMY PRESENTLY MAINTAINS AN EAST COAST AND A WEST COAST COMMUNICATIONS-ELECTRONICS REPAIR FACILITY, WORKLOAD IS NOT ASSIGNED BASED ON GEOGRAPHY. ESSENTIALLY, CUSTOMER LOCATION AND WEAPON SYSTEM DENSITY HAVE HAD NO INFLUENCE ON THE ARMY'S ASSIGNMENT OF THE GROUND COMMUNICATIONS AND ELECTRONICS WORKLOAD TO EITHER SAAD OR TOAD. BASED ON THE TRANSPORTATION COST MODEL USING MILITARY TRAFFIC MANAGEMENT COMMAND DATA AND THE ACTUAL WORLDWIDE SYSTEM LOCATIONS AND DENSITIES, THE RELOCATION OF THE SAAD WORKLOAD TO THE EAST COAST, I.E., TOAD, WOULD SAVE \$ 3,042,042 PER YEAR IN TRANSPORTATION CHARGES. THE SAME AVOIDANCE OF TRANSPORTATION COSTS WAS ESTIMATED FOR THE AIR FORCE IN THE TRANSFER OF THE GROUND COMMUNICATIONS AND ELECTRONICS WORKLOAD TO FROM SM-ALC TO TOAD.

5. INVENTORY. COMMUNICATIONS - ELECTRONICS SUPPLIES, PRESENTLY STORED AT SAAD AND HAVING AN ACTIVE DEMAND STATUS, WOULD HAVE TO BE RELOCATED TO TOAD. CHARGES WERE CALCULATED USING ENGINEERING ESTIMATES CONSISTENT WITH THE MILITARY TRAFFIC MANAGEMENT COMMAND COSTS FOR TRANSPORTATION. ACTIVE STOCKS ASSOCIATED WITH GROUND COMMUNICATIONS AND ELECTRONICS WOULD COST \$ 577,150 TO RELOCATE TO TOAD. NO SM-ALC STOCKS HAVE BEEN IDENTIFIED FOR MOVEMENT WITH THE TRANSFER OF THE MAINTENANCE WORKLOAD. SHOP STOCKS AND UNSERVICEABLE ASSETS AT SAAD AND SM-ALC ARE EXPECTED TO BE MINIMIZED, ELIMINATED, OR EXCESSED PRIOR TO TRANSFER. UNSERVICEABLE RETURNS WILL BE REDIRECTED TO TOAD WHEN APPROPRIATE IN THE TRANSITION TO MINIMIZE AND AVOID COST.

6. NEW PERSONNEL. COSTS INCORPORATED IN THIS ELEMENT ENCOMPASS RECRUITMENT EXPENSES TO BE INCURRED AT THE GAINING DEPOTS AND THE PRODUCTIVITY LAG FROM THE APPLICATION OF THE LEARNING CURVE TO THE NEWLY HIRED EMPLOYEES AT THE GAINING INSTALLATIONS. THE TRANSFER OF THE SAAD GROUND COMMUNICATIONS AND ELECTRONICS WORKLOAD WOULD REQUIRE THE HIRING OF 463 EMPLOYEES AT TOAD, AT A COST OF \$ 116.97 EACH, AND 278 EMPLOYEES AT ANAD, AT A PROCESSING COST OF \$ 415.00 EACH, FOR A TOTAL EXPENSE OF \$ 169,527. THE PRODUCTIVITY LAG ASSOCIATED WITH THESE EMPLOYEES WOULD COST \$ 831,188 FOR A 25% FACTOR OF THE \$ 17.05 DIRECT LABOR WAGE TIMES THE 195,000 DIRECT LABOR HOURS OF GROUND COMMUNICATIONS AND ELECTRONICS WORKLOAD DESIGNATED FOR TRANSFER.

TO TRANSFER THE SM-ALC WORKLOAD, TOAD WOULD HAVE TO HIRE AN ADDITIONAL 676 DIRECT AND 70 INDIRECT WORKERS AT \$ 116.97 EACH FOR A TOTAL COST OF \$ 87,259.62. THE RELATED PRODUCTIVITY LAG FOR THE 1,194,000 SM-ALC DIRECT LABOR HOURS MULTIPLIED BY 25% OF THE TOAD DIRECT LABOR WAGE COST IS \$ 5,098,380.

7. CHANGE IN PRODUCTION COST. OVERHEAD, DIFFERENTIALS, AND SALARY SAVINGS COMPRISE THE REDUCTION IN PRODUCTION COSTS. THE MOVEMENT OF THE SAAD WORKLOAD TO TOAD AND ANAD RESULTS IN THE ELIMINATION OF SALARIES TOTALING \$ 25.2 MILLION FOR CIVILIANS AND \$ 281,000 FOR MILITARY. ADDITIONALLY, THE WAGE GRADE LABOR RATE AND THE GENERAL COST OF DOING BUSINESS IS LOWER AT TOAD AND ANAD THAN AT SAAD. THESE LOWER COST EQUATE TO \$ 10.2 MILLION IN ADDED SAVINGS BY RELOCATING THE WORKLOAD FROM THE WEST COAST. TOTAL COST OF PERFORMING THE GROUND COMMUNICATIONS AND ELECTRONICS WORKLOAD WAS COMPARED BETWEEN SAAD AND THE TOAD/ANAD ALTERNATIVE. AGGREGATE SAVINGS WAS ACCOUNTED TO THE NUMBER OF ELIMINATED POSITIONS, THE LOWER COST OF LABOR AND OVERHEAD AT TOAD/ANAD, AND THE AVOIDANCE OF THE BASE OPERATIONS EXPENSE OF SAAD. HOURLY RATE COMPARISONS WERE PERFORMED AMONG THE DEPOTS TO EXHIBIT THE BREAK-OUT OF EACH CATEGORY OF EXPENSE.

FOR THE TRANSFER OF THE SM-ALC WORKLOAD TO TOAD, 719 DIRECT AND 479 INDIRECT SPACES WERE ELIMINATED AT SM-ALC AND REPLACED BY 676 DIRECT AND 73 INDIRECT SPACES AT TOAD. THE DIFFERENCE OF 452 SPACES REPRESENTS AN ANNUAL SAVINGS IN SALARIES AND BENEFITS OF \$ 18.08 MILLION. TO COST THE DIFFERENTIAL AND OVERHEAD SAVINGS, THE SM-ALC COMPOSITE LABOR RATE OF \$ 67.36 PER DIRECT LABOR HOUR WAS COMPARED TO TOAD'S COMPOSITE RATE OF \$ 42.06. THE DIFFERENCE OF \$ 25.30 PER DIRECT LABOR HOUR WAS MULTIPLIED BY THE 1,194,000 DIRECT LABOR HOURS OF SM-ALC WORKLOAD FOR A TOTAL SAVINGS OF \$ 30.208 MILLION. THE SAVINGS ASSOCIATED WITH THE 70 INDIRECT EMPLOYEES WOULD AMOUNT TO AN ADDITIONAL \$ 790,000.

8. COST SAVINGS ON MILCON. THE MICROWAVE FACILITY PLANNED FOR SAAD IN FY 89 HAS BEEN DELAYED PENDING THE OUTCOME OF THE BASE CLOSURE STUDY OF THE DEPOT. THIS FACILITY WOULD NOT BE REQUIRED IF GROUND COMMUNICATIONS AND ELECTRONICS WOULD BE TRANSFERRED TO TOAD. NO SAVINGS ARE EXPECTED FROM SM-ALC SINCE NO NEW BUILDINGS ARE PLANNED TO SUPPORT THE WORKLOAD DESIGNATED FOR TRANSFER.

9. BASE OPERATIONS SUPPORT. THE CLOSURE OF SAAD WOULD ELIMINATE THE NEED FOR A \$ 4.4 MILLION PORTION OF THE PAN AM WORLD SERVICES CONTRACT. NO REDUCTIONS IN BASE OPERATIONS AT SM-ALC ARE EXPECTED TO RESULT FROM THE TRANSFER.

GROUND COMMUNICATIONS AND ELECTRONICS STUDY

OPTION 4 SM-ALC GCE WORKLOAD TO ALL OTHER AF-ALC'S

APPENDIX (8)

(HOURS IN THOUSANDS)

DEPOT	FY 91 FUNDED WKLD	FY 91 B1615 CAP	FY 91 CAPACITY % UTIL	FY 92 FUNDED WKLD	FY 92 B1615 CAP	FY 92 CAPACITY % UTIL	FY 93 FUNDED WKLD	FY 93 B1615 CAP	FY 93 CAPACITY % UTIL	FY 94 FUNDED WKLD	FY 94 B1615 CAP	FY 94 CAPACITY % UTIL	FY 95 FUNDED WKLD	FY 95 B1615 CAP	FY 95 CAPACITY % UTIL
SAAD	975	2,394	40.73X	1,113	2,394	46.49X	914	2,394	38.18X	914	2,394	38.18X	914	2,394	38.18X
TOAD	1,907	3,859	49.42X	2,122	3,859	54.99X	2,144	4,570	46.91X	2,144	4,570	46.91X	2,144	4,570	46.91X
SM-ALC	1,194	1,777	67.19X	1,265	1,777	71.19X									
USMC BAR	206	203	101.67X	170	164	103.38X	169	166	101.57X	170	166	102.17X	181	172	105.07X
USMC ALB	220	213	103.10X	247	238	103.85X	250	238	105.11X	251	240	104.67X	253	240	105.50X
HAD-PH	9	14	64.5X	9	14	65.7X	9	14	65.7X	9	23	38.3X	9	14	65.7X
HAD-JA	1	5	20.4X	1	5	20.4X	1	5	20.4X	1	5	20.4X	1	5	20.4X
HAD-NOR	4	19	20.2X	4	19	21.5X	4	19	21.5X	4	19	21.5X	4	19	21.5X
HESEC SD	16	25	62.9X	18	25	70.7X	19	25	74.7X	21	25	82.5X	23	25	90.4X
HESEC POR	2	4	51.1X	2	4	51.1X	2	4	51.1X	2	4	51.1X	2	4	51.1X
AF-ALC'S							1,306	1,306	100.0X	1,282	1,282	100.0X	1,272	1,272	100.0X
	4,534	8,513	53.3X	4,951	8,499	58.3X	4,818	8,741	55.1X	4,790	8,729	55.0X	4,803	8,715	55.1X

GROUND COMMUNICATIONS-ELECTRONICS STUDY

OPTION IV: SM-ALC GCE WORKLOAD TO OTHER ALCs

1. ASSUMPTIONS:

Based on current data available, the following major assumptions were made:

- a. Performance, quality, and cost to repair like items are roughly equivalent at all AFLC depots.
- b. Maximum capacity is defined in terms of direct manhours (1615/person/year X .95) that are calculated based on the maximum number of direct labor personnel that can effectively work in a single shift within the associated shop category.
- c. With Air Force units deployed world-wide, there is no cost advantage to East coast or West coast depot locations.
- d. Transfer of SM-ALC's GCE workload to another location would not result in nor necessitate closure of SM-ALC or McClellan AFB.
- e. Relocation of SM-ALC's GCE depot maintenance workload to another Air Logistics Center would necessitate the relocation of the Inventory Control Point (ICP) functions also.

2. COST/SAVINGS: (SEE ATTACHED TABLE)

There is no cost advantage to moving SM-ALC's GCE workload to another ALC. Over a five year period, the net loss to the government would be \$52.1 M.

3. WORKLOAD CAPACITY IMPACT:

Transferring SM-ALC workload to another ALC would have an adverse impact on DoD capacity utilization. Although a portion of the SM-ALC GCE facilities could be closed (laid away), the balance of the SM-ALC facilities would need to remain open to perform Space, Avionics, Early Warning and other electronic workloads, and would do so at a reduced capacity utilization. The net result would be a decrease in utilization from 69 percent to 45 percent (see Table X(2)). (Minus 1.194M direct labor hours of workload and minus .833M direct labor hours of laid away capacity).

4. MOBILITY/SURGE/CORE/READINESS IMPACTS:

- a. SM-ALC's GCE workload has always been used as a significant contributor to the center's "Critical Mass" (that amount/type of peacetime workload needed to sustain a workforce capable of meeting wartime requirements). Since most GCE is low surge, it is used to offset the center's high surge workloads for wartime planning. Loss of the GCE would lead to a plethora of high surge workload at SM-ALC and thus a surge imbalance.

b. SM-ALC is the primary DoD Inventory Control Point (ICP) and depot for space programs. This is due to the similarity of skill and facility requirements for Ground Communication-Electronics (GCE) workload, which is included in this study, and space component workload, which is excluded from this study. SM-ALC relies heavily on the crossing and sharing of skills between these two workload sets. These can be characterized into two broad categories: Large Radars and Electronic Assemblies.

(1) Large Radars: SM-ALC is the ICP and depot for most large radars in the DoD inventory. Examples include the FPS-117, which is a space system, and the TPN-19 and GPN-22 radars, which are GCE. These systems have many similar components that are repaired by the same Electronic Mechanics using the same facilities and common support equipment. The Electronic Engineers and Electronic Technicians may also be the same for certain components. These components include such things as wave guides, receivers, transmitters, and phase shifters. Transferring the GCE from SM-ALC would erode the skills base used for the space systems and would only free-up a minimum of facilities or equipment. These core skills, facilities and equipment must be maintained at SM-ALC for accomplishment of the Space and Early Warning workloads.

(2) Electronic Assemblies: SM-ALC has the most sophisticated facilities for repair and manufacture of electronic assemblies in DoD, and in some cases, in the world. Capabilities include printed circuit board manufacture, VHSIC insertion, fiber optic insertion and repair, nuclear hardness testing and certification, and reverse engineering. These capabilities, as well as the Electronic Mechanics, Engineers and Technicians who repair them, are shared among all of the electronic workloads at SM-ALC, including avionics, space and GCE systems. For example, SM-ALC has a unique capability in the neutron radiography facility that is used to provide an image of the interior structure of printed circuit cards for reverse engineering and manufacture. This facility is also used to test and certify the nuclear hardness of specific components. Removal of the GCE workload from SM-ALC would cause erosion of the skills base used for these and other critical technologies. In addition, certain facilities such as the Neutron Radiography facility, do not exist anywhere else in DoD or the world.

c. Many of the GCE systems are software intensive. In order to properly support these systems, ICP responsibilities (primarily sustaining engineering), hardware maintenance, and software support must all be collocated. SM-ALC has extensive software support facilities that meet the collocation requirement and are shared with other electronic programs under the Extendible Integration Support Environment (EISE) concept.

d. SM-ALC's ability to respond to mobilization requirements is augmented by immediate access to all forms of transportation. Air transport is readily available, from both McClellan AFB and Sacramento Metropolitan Airport. SM-ALC has a rail hub, and is at the conjunction of 4 major interstate highways. The city of Sacramento has a deep water Port and McClellan AFB has a dock with crane at the deep water channel leading to the Pacific Ocean.

for sea shipments. Depot support response time would be adversely impacted by not having these transportation resources readily available, as would be the case in a workload transfer.

5. POTENTIAL FACILITY LAYAWAYS: Draft layaway analysis results in a computed \$ 569,967 first year cost (see Table X(2)).

6. PROS AND CONS:

a. PRO:

Increased capacity utilization at other ALCs.

b. CONS

(1) Transferring SM-ALC's GCE workload to another ALC would be very costly. It would take more than 15 years for the 16 percent indirect efficiency difference to amortize the initial cost of this option.

(2) Removing GCE (approximately 1.2M manhours of direct labor) from SM-ALC would increase the overhead rate for remaining workloads.

(3) Removal of this workload from SM-ALC would degrade the skill base needed to support Space and other electronic workloads at SM-ALC.

(4) There will be some duplication of facilities and equipment between SM-ALC and other ALCs. Many facilities must remain open to support space and other electronics workloads that SM-ALC would continue to repair in the event of a GCE transfer. Many pieces of equipment must be duplicated to support ICP engineering, software and system integration functions.

(5) Capacity utilization efficiency at SM-ALC would be reduced. Little capacity would be eliminated (see Table X(2)).

(6) SM-ALC's surge capability would deteriorate due to loss of low surge peacetime workload.

(7) SM-ALC facilities are designed to support very large, low volume system repair. Many items are in depot once every several years. Most other DoD facilities are designed for production line repair of large numbers of smaller items. Transition would be very difficult for a gaining depot activity. The Automated Storage and Retrieval systems at SM-ALC are designed for OMEI-type (large GCE systems) work. With the floor space and physical weight-bearing capacity to support this effort, SM-ALC can store, track, transport, and manage all levels of GCE workload. Systems at other depots designed for smaller electronics workloads are not applicable to physically large systems, with long lead composite times, and short lead sub-system times. In-depot management of GCE systems during the OMEI (overhaul) phase is critical to timely support. This facility and experience base would be lost with transfer of GCE from SM-ALC.

(8) This alternative would have a significant negative user mission impact. Extensive use of Interim Contract Support will be required to reduce the impact of closing down SM-ALC GCE support for the period required to hire and train, and to get facilities and equipment in place that can handle the new workload.

(9) SM-ALC is one of the most sophisticated logistics activities in DoD. SM-ALC has developed an extraordinary capability for high-tech diagnostics, repair and manufacturing that exceeds anything else in DoD and, in some cases, is unmatched anywhere in the world (either public or private sector). By transferring SM-ALC's GCE workload to another ALC, use of the most modern electronics depot level repair facility in DoD will be lost to the GCE world.

(a) REVERSE ENGINEERING: The process of Reverse Engineering entails development of specifications, form/fit/function, repair procedures, etc., for a component by component analysis of the chip or circuit card itself. Reverse Engineering is frequently required to develop repair or manufacturing procedures for VHSIC chips, circuit cards and other components for which there is no repair source or data. Often these are parts that have been abandoned by the original manufacturer. There is also the problem of diminishing manufacturing sources for many components. SM-ALC's capability in the area of microelectronics and Very High Speed Integrated Circuits (VHSIC) is unsurpassed in DoD. The Advanced Electronics Technology Center (AETC) at SM-ALC provides a unique and extensive microelectronic technology capability within AFLC. There is a Class 100 clean room and capability to design, develop, and manufacture microelectronics components. SM-ALC has an extensive capability for Reverse Engineering in the area of microelectronics. SM-ALC has the microscopes, CAD/CAM systems, and testers required to duplicate schematics and determine function down to the component level. Using the Neutron Radiography equipment, SM-ALC has the capability to duplicate multi-layer circuit boards. SM-ALC also has the capability for computer simulation to test the operation of components. SM-ALC also has a VHSIC tester that provides a unique test capability for VHSIC chips. No other DoD agency has the capabilities that SM-ALC has in the area of microelectronics reverse engineering. SM-ALC provides this service to Army and Navy activities. The practice of reverse engineering is not prevalent in industry. There is no company that routinely provides this service. It is unrealistic to assume that these capabilities could be replaced or relocated to one of the existing DoD logistics activities. The Sacramento area has a high proportion of highly skilled electronics and software professionals. These skills are being developed in the Sacramento area as well as being imported from the "Silicon Valley" of the San Francisco Bay area. Many firms are already reside in this area (INTEL Inc, Hewlett Packard, etc.), thus providing a breeding ground for skills not found in the requisite numbers elsewhere. SM-ALC has made excellent use of this resource.

MICROELECTRONICS TECHNOLOGY CENTER
13,000 square feet Class 100 clean room \$35,000,000.00 capital investment 36 Electronics Applications Engineers

(b) PWB MANUFACTURE: SM-ALC's printed wire board manufacture facility can manufacture, test, and repair all types of circuit board assemblies found in industry today. Testing is possible from bare board through finished assembly, using Xray and/or ATE, depending on requirement.

PWBA MANUFACTURING AT SM-ALC (overview)	
15,000 square feet \$9,797,000.00 capital investment Quality Assurance/Mil Spec Compliance Lab	
PWBA TECHNOLOGIES SUPPORTED	
Surface Mount Technology Tape Automated Bonding Circuit On Board	Fine Pitch Technology Multi Chip Module Plated Through Hole
TYPES OF PWB's MANUFACTURED AT SM-ALC	
single sided flex multilayer	double sided ceramic

(c) NON-DESTRUCTIVE INSPECTION: The Neutron Radiography Non-Destructive Inspection (NDI) facility at McClellan is the largest robotic NDI facility in the world-military or commercial. This facility can handle an entire aircraft and inspect the structure for cracks, corrosion and other defects. This facility also provides SM-ALC with the unique ability to test and certify the radiation hardness of items requiring this critical capability. A small nuclear reactor is the core of the NDI capability. This capability cannot be moved due to the possibility of contamination from the reactor. The NDI facility is a concrete and steel structure with insulated roof, concrete floors, X-ray and N-ray shielding, heating and ventilating systems, lighting, fire protection, restrooms, and offices. The N-ray and X-ray bays must have floors capable of supporting medium load, tricycle gear fighter aircraft. The X-ray cell has 12 inch concrete shielding in the ceiling. There are four radiation source pits (four feet by six feet by three feet deep)-one in each corner of the N-ray bay. There are two powered and shielded doors in N-ray. One is 25 feet by 89 feet and the other is 8 feet by 10 feet powered and shielded. There are also two main doors in X-ray, one 25 feet by 78 feet and the other 8 feet by 10

feet. These doors are also powered and shielded with 1/4 inch thick lead. There are other smaller doors that are also powered and shielded. The Stationary Neutron Radiography System (SNRS) consists of a containment structure constructed of reinforced concrete around a reactor and exposure areas, with concrete block and prefabricated metal upper structure. The area includes water filled reactor tank, four radiography bays and control centers; preparation areas, and direct support equipment. The heart of the facility is a fully equipped, 250-Kilowatt Training Research Isotope General Atomic (TRIGA) nuclear reactor including parts handling, neutron beam, imaging, shielding, and safety systems. The costs associated with these facilities are:

NDI Facility:

Cost to Build: \$6.4 M plus \$7.6 M for Initial Outfitting Equipment (IOE)
Cost to Move: Not feasible
Cost to Rebuild: \$8.2 M plus IOE

SNRS:

Cost to Build: \$18.0 M
Cost to Move: Not feasible due to potential for nuclear contamination
Cost to Rebuild: \$18.0 M
Cost of TRIGA Reactor and Ancillary Equipment: \$10.6 M

(d) SHELTERS: Much of GCE is tactical in mission, and accordingly shelterized. SM-ALC has a 203,000 square foot facility solely dedicated to Van & Shelter manufacture and repair. This facility operates in compliance with State and local EPA guidelines, the most stringent in the country. SM-ALC's hazardous material abatement program has achieved a 57% reduction in hazardous material, surpassing the DoD goal of 50% by 1992. Plastic media blasting (as opposed to chemical wash), Cadmium recovery, and high pressure water blasting are all processes used in support of GCE, in place at SM-ALC.

(e) ANTENNA SUPPORT: Antenna support at SM-ALC involves in-system testing capability for phased array antennas, such as FPS-117, Anechoic chamber testing on antennas such the MSQ-118, and antenna manufacture, for antennas such as the spiral antenna used on the ALQ-133, part of Army's Quicklook program. As part of the initial input on antenna design, SM-ALC technicians and engineers have worked with Westinghouse on the antenna development for the TPS-75, an ultra low sidelobe antenna concept.

(f) TPS DEVELOPMENT: GCE depot support requires extensive Test Program Set (TPS) development, and SM-ALC has an extensive GCE TPS development facility capable of meeting the demands of supporting complex GCE equipment. Complete TPS's for GCE systems, sub-systems, LRU's, and SRU's are developed at SM-ALC. TPS's developed by SM-ALC include all documentation, software, and interface test adapters. Using techniques such as signature, guided probe, or nodal analysis the TPS will take the technician down to the piece/part level. With TPS development

done in the same location as the repair, TPS support is readily available. With GCE systems being modified rather than replaced, TPSSs need to be updated, as required. At SM-ALC the TPS engineers work with the repair technicians to accomplish TPS modifications in a timely manner. This consolidated effort results in minimal lag time for support, and a timely audit trail for documenting upgrades to the T.O. system. The success of the TPS capabilities at SM-ALC have garnered customers world-wide: Saudi Arabia and Canada have contracted with SM-ALC for TPS development on their State-of-the-Art GCE systems.

TPS DEVELOPMENT AT SM-ALC (overview)
30,000 square feet of facilities
\$45,000,000.00 capital investment
41 separate ATE systems
72% of personnel have EE degrees

(g) ADVANCED COMPOSITES: The Advanced Composites Program Office (ACPO) was established at McClellan in 1983. The role of this office is to establish a capability to apply advanced composites technology and then to export this technology to other DoD activities. Work done in advanced composites at McClellan is on the leading edge of this technology. The ACPO provides training to Air Force personnel in 6 major areas: Composite Materials, Basics of Structural Design, Processing/Quality Control, Repair Techniques, Composite Tooling, and Injection Molding of Thermoplastics. The office fully supports Three-dimensional CAD/CAM/CIM, Drafting, Solids Modeling, Finite Element Analysis, Whiffle Design and Five-Axis Numerical Control Programming. The operational test facility is capable of simulating aerodynamic heating (up to 500° F while applying stress. The Thermoplastic Injection Molding Facility can manufacture items with a 500 square inch, single plane surface area and a maximum weight of 20 pounds, clamped with up to 1500 tons of pressure.

(10) The requirements for successful depot activation cross the lines of engineering, planning, logistics and technology. These skills are amassed through training, both formal and on-the-job, and experience. The depot activation team at SM-ALC is synergistic, and this would be lost when workloads are transferred. Because of the many issues that go into successful support a GCE system, SM-ALC has a support organization that specifically addresses the following issues of logistic support:

(a) SATAF: As part of the Site Activation Task Force, team members from SM-ALC work towards a successful system turnover. By having technicians on site, future support problems are noted and planned for.

(b) DMAWG: As part of the Depot Activation Working Group, planning is started for adequate depot level support in a timely manner. This way, need for contract maintenance support is minimized, helping the program office stay in budget.

(c) ILSWG: As part of the Integrated Logistics Support Working Group, SM-ALC team members will evaluate data, such as Mean Time Between Failures (MTBF) and the Initial Spares Support List (ISSL). By using their technical background, a comparison is made as to whether the MTBF relates to the ISSL for adequate pipeline spares, and customer support. If not, options such as Spares Acquisition Integrated with Production (SAIP) to be used for TPS development prior to PMRT are recommended.

(d) LSMFT: As part of the Logistics Support Management Fusion Team, all aspects of support, from both the user and depot, are taken into consideration. By working with the customer in this way, a better support base is built.

(e) CRWG: As part of the Computer Resources Working Group, the computer code is evaluated for mission support, and life cycle supportability. As software is an integral part of GCE, the CRWG is a critical path in logistics support.

(11) SM-ALC works closely with 5 local area colleges and Universities. Co-op programs for electronics technicians have been established at all the community colleges, and Long Term, Full Time (LTFT) education programs are available to employees at the state colleges and Universities. Consequently, all educational aspects of logistics support are covered, not just one peculiar part. As an example, the direct labor that organically supports the AN/FPS-117, has a minimum education level of a 2 year electronics technology degree (AA) from accredited community colleges.

GROUND COMMUNICATIONS AND ELECTRONICS STUDY

OPTION IV - TRANSFER SM-ALC GCE WORKLOAD TO ANOTHER ALC

COST ANALYSIS - AIR FORCE INPUT

1. RELOCATION OF PRODUCTION EQUIPMENT: The plant equipment located at SM-ALC for use with GCE depot level maintenance was reviewed by SM-ALC engineers and equipment specialists. Only peculiar support equipment was identified for possible transfer. That equipment that was exclusively used for workload identified as a candidate for transfer was evaluated for shipping requirements, with the following results:

TEARDOWN/PACK/UNPACK/SETUP/CALIBRATE	\$3,600,000
SHIPPING	420,000
TOTAL:	\$4,020,000

2. PERSONNEL REDISTRIBUTION:

a. The cost to redistribute SM-ALC's GCE depot maintenance workforce includes the expenses delineated below. Available employment in the Sacramento area is predominantly service oriented. The vast preponderance of industrial jobs are with DoD either at SM-ALC or SAAD. Electronics firms in the area offer predominantly assembly jobs, for which displaced SM-ALC blue collar employees would be over qualified. Therefore, it would be at least 24 weeks before most of the displaced employees would find suitable employment. It is also expected that only 5% of the displaced blue collar employees would accept offers to transfer to other locations. It has been our experience that blue collar workers are reluctant to leave the area. Most families are dual-income, and would prefer to operate for 6 months to a year on a single income awaiting suitable employment in the area.

b. It is expected that 25% of the white collar workers in the ICP functions would transfer to another ALC. White collar workers with the Air Force are more mobile and more apt to accept employment elsewhere with the Air Force. There is also a greater number of local jobs for which the displaced white collar workers would qualify at similar pay. Therefore, a period of 12 weeks unemployment is expected for white collar.

c. No military relocations are expected from SM-ALC.

WAGE GRADE:

TOTAL SM-ALC GCE EMPLOYEES:	719
NUMBER OF TRANSFERS:	36 (.05 * 719)
NUMBER SEVERED:	683
UNEMPLOYMENT PERIOD:	24 WEEKS
AVERAGE AGE:	44
AVERAGE YEARS SERVICE:	14
AVERAGE SALARY:	\$31,211

UNEMPLOYMENT COMPENSATION: \$ 3,114,708 (683 * 24 * \$190 PER WEEK)
 SEVERANCE PAY: 10,330,375 (683 * \$15,125 PER PERSON)
 PCS COST: 1,150,400 (36 * \$32,000 PER PERSON)
 TOTAL COST: \$14,595,483

WHITE COLLAR:

TOTAL SM-ALC GCE EMPLOYEES: 267
 NUMBER OF TRANSFERS: 67 (.25 * 267)
 NUMBER SEVERED: 200
 UNEMPLOYMENT PERIOD: 12 WEEKS
 AVERAGE AGE: 44
 AVERAGE YEARS SERVICE: 13
 AVERAGE SALARY: \$30,964

UNEMPLOYMENT COMPENSATION: \$ 456,000 (200 * 12 * \$190 PER WEEK)
 SEVERANCE PAY: 2,477,200 (200 * \$12,386 PER PERSON)
 PCS COST: 2,144,000 (67 * \$32,000 PER PERSON)
 TOTAL COST: \$ 5,077,200

3. CAPABILITY DEVELOPMENT:

a. It is important to note that facilities for C-E commodities are not suitable for Other Major End Item (OMEI) overhaul of the tactical and fixed site systems that are typical of SM-ALC's GCE workload. Each GCE system has peculiar support requirements. As an example, system test equipment is specifically built for the AN/TPS-43, and is not applicable to other systems. Facilities for this workload include a power pad and shop area designed for TPS-43 support that is not transportable to another facility. These include hazardous material handling and peculiar phase and frequency power requirements.

b. Many of the OMEI systems repaired and overhauled at SM-ALC require a duplicate, dedicated "hot mock-up" system in depot to perform system level testing and to allow testing of engineering and software block changes by the ICP personnel. Having the ICP and depot level repair/overhaul functions collocated at SM-ALC has allowed the use of a single hot mock-up to perform both tasks. Should the workload transfer to another ALC with the ICP function, these systems would have to be transferred for the following systems:

**GROUND COMMUNICATION AND ELECTRONICS WORKLOAD REQUIRING
DEPOT-DEDICATED SYSTEMS FOR ORGANIC SUPPORT:**

GPN-20	GRC-212	FMQ-12
TPN-19	MRC-107	TSQ-111
MPS-11	MRC-108	TSC-60
FPN-62	MPQ-T3	GRC-616
MPN-14	MPS-9	GRC-206
TPS-43	MSQ-77	TPQ-43
TPS-75	MST-T1	VPQ-1
FPS-6	MODEL 40	GSQ-24
FPS-20	UGC-129	UGC-140
FPS-93	DISS ANTENNA	DUAL FREQUENCY SIGNALING UNIT
GMD-5	SCOPE SIGNAL III	DEFENSE DATA NETWORK
	TPS-77	TACTICAL DIGITAL FACSIMILE

c. COSTS:

REPLACEMENT OF HOT MOCK-UPS:	\$ 0
SPECIALIZED FACILITIES/RENOVATION:	5,300,000
SPECIALIZED TEST EQUIPMENT NOT AVAILABLE FOR TRANSFER (SEE ITEM 1):	<u>3,400,000</u>
TOTAL:	\$ 8,700,000

4. TRANSPORTATION CHANGE: Based on the world-wide deployment of Air Force GCE equipment, the volatility of global requirements, and the relative equivalence of transportation access in the Sacramento and other centerlocations, no additional costs or savings can be claimed for location.

5. INVENTORY: Electronics supplies used exclusively for SM-ALC's GCE depot level repair and overhaul would be transferred to another ALC. Supplies that are common to other workloads at SM-ALC would be retained at SM-ALC and would have to be duplicated at another ALC.

COST OF RELOCATION:	\$ 400,000
COST OF DUPLICATION:	<u>1,320,000</u>
TOTAL:	\$1,720,000

6. NEW PERSONNEL:

a. Costs associated with this element include recruitment expenses, training costs, ICS during transfer and recruitment phase at the gaining location, and productivity loss resulting from new personnel. Extensive training requirements are associated with the type of workload being transferred (specifically the OMEI workload) that currently exists only at SM-ALC. It is estimated that 50% of the new-hires at the new location would require training of this magnitude. An example of training is described below for the TPS-43 Radar:

GCE SKILLS REVIEW TPS-43 Radar Support			
Skills & training.	PE's	% of direct labor	
Integrated Systems mechanics (WG-12)	7	25%	
Electronics mechanics systems overhaul (WG-11)	15	54%	
Electronics mechanic MISTR support (WG-08)	6	21%	
TPS-43 direct labor	28	100%	
Formal System training	22	79%	course length: 800 hrs.

b. COSTS:

RECRUITMENT:	\$ 282,560	883 PEOPLE @ \$320 PER PERSON
TRAINING (SALARIES)	4,658,060	683 * 50% * 800 HRS * \$17.05/HR
TRAINING (TRAINERS)	683,000	27,320 INS HRS * \$25.00/HR
CS COST	32,000,000	SPM ESTIMATE
PRODUCTION LAG:	\$4,805,725	1,138,000 HRS * .25 * \$17.05/HR
TOTAL:	\$42,429,345	

7. CHANGE IN PRODUCTION COST:

a. Air Force representatives on the DDMC Sub-Group for GCE were instructed by the chairman of the DDMC Sub-Group on cost comparison not to use a composite labor rate to compute the Change in Production Cost. This was due to findings/direction provided by the DDMC Sub-Group for Cost Comparison noting dissimilarities in the services' cost accounting practices and providing formulas for competitive comparison. The reduction in overhead associated with SM-ALC for Option IV is based on the DDMC Sub-Group Rotary Wing Depot Study conclusion that, "Indirect cost savings from consolidation of rotary wing work are approximately 16 percent (number of indirect personnel divided by number of direct personnel identified for separation as a result of consolidation). The 16 percent is based on minimal data points. Sensitivity analysis varying this parameter from 11 percent to 25 percent was conducted and recommended alternatives were relatively insensitive to the variations."

b. WAGE GRADE: Based on 719 direct personnel and 16 percent indirect personnel, the following applies; 719 direct personnel multiplied by a .16 indirect personnel factor equals 115 personnel. Indirect personnel (115) multiplied by the average annual salary (\$ 31,211) equals a \$ 3,589,265 savings.

c. WHITE COLLAR: Based on 267 direct personnel and 16 percent indirect personnel, the following applies; 267 direct personnel multiplied by a .16 indirect personnel factor equals 43

personnel. Indirect personnel (43) multiplied by the average salary (\$ 30,964) equals a \$ 1,331,452 savings.

8. COST SAVINGS ON MILCON: None

9. BASE OPERATIONS SUPPORT (BOS): Zero savings. Any reduction in GCE direct labor at SM-ALC would have an additive effect on remaining direct labor operations (workloads such as aircraft, space, air warning, etc). While decreases in industrial plant utility and maintenance costs would occur, BOS operations which are costed over the entire SM-ALC maintenance complex would cause a net increase to the remaining depot operations. In addition, the SM-ALC utility and maintenance cost decreases would also result in corresponding increases at other ALCs.

COSTS/SAVINGS SUMMARY - SM-ALC TO ANOTHER ALC
(DOLLARS IN MILLIONS)

CATEGORY	COST
1. RELOCATION OF EQUIP	\$4.0
2. PERSONNEL REDISTRIB	
A. UNEMPLOYMENT	\$3.6
B. SEVERANCE	\$12.8
C. PCS - CIV	\$3.3
D. PCS - MIL	\$0.0
PERSONNEL SUB-TOTAL	\$19.7
3. CAPABILITY DEVELOPMENT	
A. FACILITIES	\$5.3
B. EQUIPMENT	\$3.4
C. TRANSPORTATION	SEE # 1
D. FACILITY MOD	\$0.0
CAP SUB-TOTAL	\$8.7
4. TRANSPORTATION CHANGE	\$0.0
5. INVENTORY MOVE	\$1.7
6. NEW PERSONNEL	
A. PRODUCTIVITY LAG	\$4.8
B. RECRUITMENT	\$0.3
C. TRAINING	\$5.4
D. ICS	\$32.0
NEW PERS SUB-TOTAL	\$42.5
7. CHANGE IN PROD COST	
A. INDIRECT	\$-4.9
B. INTERSERVICING	N/A
CHANGE SUB-TOTAL	\$-4.9
8. COST SAVINGS MILCON	\$0.0
9. CHANGE IN BOS	\$0.0
ANNUAL SAVINGS	\$-4.9
5 YEAR SAVINGS	\$-24.5
TOTAL COST	\$+76.6
1st YEAR RESULT	\$+71.7
5 YEAR RESULT	\$+52.1

SM-ALC LAYAWAY SPREADSHEET DRAFT

BUILDING	WORK POSITIONS	PEACETIME CAPACITY	AREA (SQ FT)	COST OF OWNERSHIP	COST TO LAYAWAY	COST TO MAINTAIN LAYAWAY	COST (+) SAVINGS (-)	LAST USE
437	408	830,490	128,000	98,047	490,005	92,250	+ 484,208	GC&E REPAIR AND OVER- HAUL
1093	169	202,431	36,885	56,977	142,822	26,914	+ 112,759	
TOTAL	767	838,121	158,885	155,024	632,827	119,164	+ 596,967	(1ST YR)

FY91 (ANALYSIS YEAR) OPTION IV IMPACT

5 YR RESULT - + 453,527 (COST)

17.6 YR PAYBACK

ELIMINATE SM-ALC GC&E WORK POSITIONS

COST SAVINGS FOR YEAR TWO AND OUT - 155,024 - 119,164 - 35,860 PER YEAR

UTILIZATION:

MINUS 1.194 HOURS UTILIZATION

MINUS .833M HOURS CAPACITY

DECREASES REMAINING C-E UTILIZATION TO 45 PERCENT

NOTE: THIS REPRESENTS A ROUGH ORDER OF MAGNITUDE ESTIMATE.
DURATION OF THE DDMC SUB-GROUP FOR GC&E STUDY DID NOT
PERMIT IN-DEPTH STUDY NEEDED TO PRODUCE ACCURATE DATA.
OTHER C-E FACILITIES ARE JOINT USE AND DO NOT APPLY.

TABLE X(2)

GROUND COMMUNICATIONS AND ELECTRONICS STUDY

Option V: Competition - Private/Public, Public/Public,

1. This option addresses potential savings to be accrued through full and open competition of non-core GCE workloads. This option will be executed by the Services Maintenance Corporate business offices and coordinated by the Joint Depot Maintenance Analysis Group (JDMAG) with oversight provided by the Joint Policy Coordinating Group on depot maintenance. The full exploitation of opportunities for savings identified by this option is an evolutionary process involving ongoing and future programs that include but are not limited to:

- a. Existing commercial contracts
- b. Existing non-core organic workloads
- c. Existing Depot Maintenance Interservice Support Agreements (DMISAs)
- d. New starts currently in the depot maintenance source of repair decision logic process
- e. Planned major refurbishment, modification, product improvement (PIP), service life extension (SLEP), etc., programs
- f. Existing and planned manufacturing and fabrication programs.
- g. Non-traditional areas for joint investment opportunities
- h. New acquisitions

2. If the Navy's competition experience is applicable, a cost savings or avoidance (depending whether the candidate is from an ongoing or future program) in the order of magnitude of 15 to 20 percent may be realized. This study provides the nucleus of the business base. As each Statement of Work (SOW) and Technical Data Package (TDP) is provided, the candidate will be entered into the business base and competed as indicated in Figure 1.

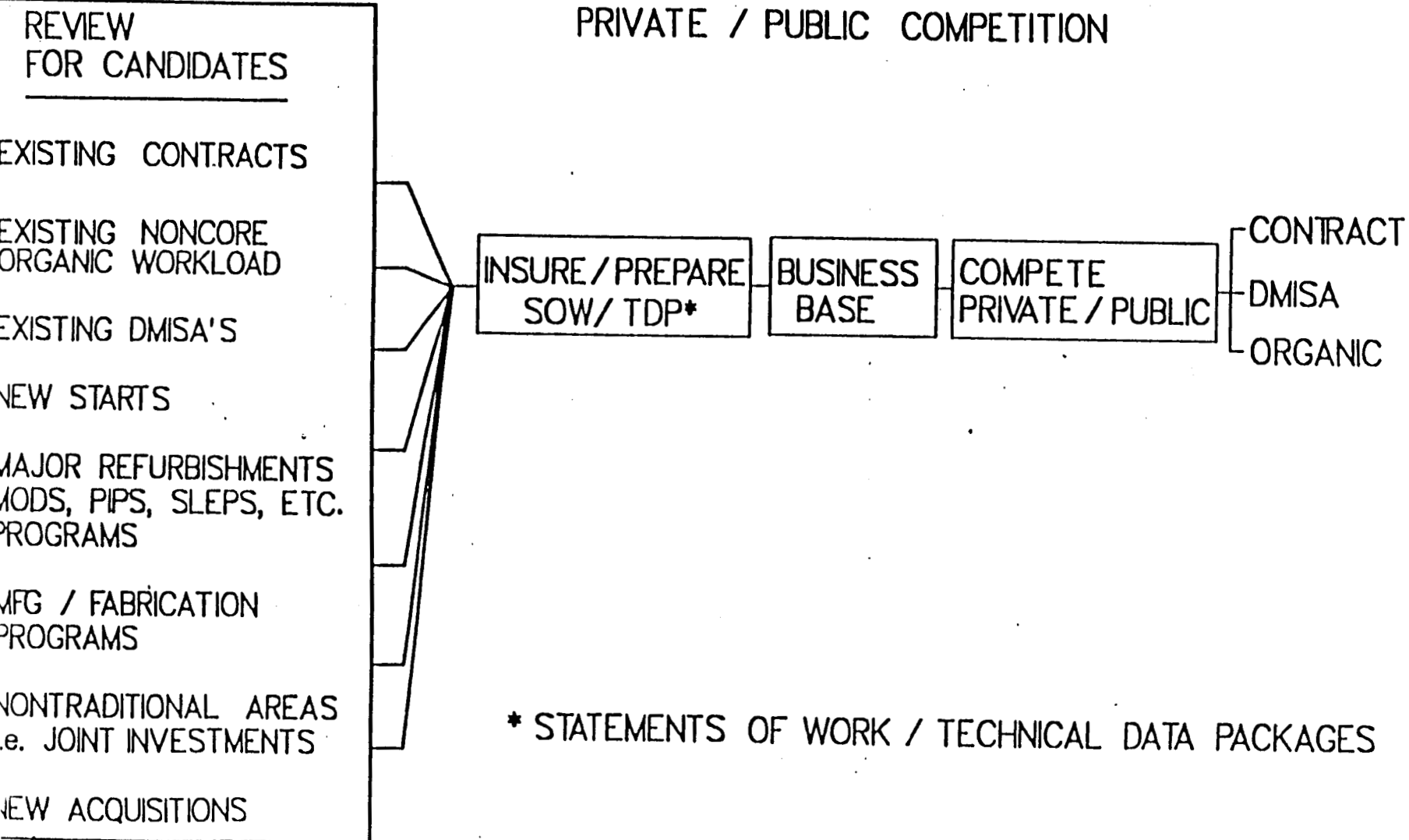
3. Reference (m), the Joint Service Memorandum for the Assistant Secretary of Defense concerning strengthening depot maintenance, identified savings targets to accomplish the \$2.2 billion savings specified in the long range plan for increased efficiencies in depot maintenance. Tables 1 through 4, attached, provide the results of an analysis by the GCE team to allocate a proportionate share of the inter-service and competition savings targets to the GCE commodity. The service targets have been

adjusted to take into account specific opportunities for savings where such opportunities exist and to more accurately reflect the individual service positions and the studied inputs of the combined GCE team membership. Inter-servicing actions are expected to result in a gross savings of 12% and a net 9% return after transfer costs are absorbed as identified in reference (m). Competitions that involve the private sector are computed at a gross savings of 20% with a net savings of 16% after adjustment to account for the cost of competition. Cost of competition is computed as an annual cost against the competition business base irrespective of the length of any resulting contracts. The funds identified in the "cost of competition" column should be utilized to fund the total cost of competition including the service and joint service business offices.

4. As a result of the depot visits by team members and analysis of the data available in other options of this report, it is evident that significant opportunities exist to inter-service above core Ground Radio and Communications Systems and Ground Radar workload. It is the unanimous opinion of the GCE team, however, that above core workload should only be inter-serviced or retained as a result of full and open competition with both the public and private sectors. Tables 1 through 4 provide the minimum levels of competition that must occur to accomplish the savings as indicated.

5. The continuation of the competition program will be conducted as part of the Joint Depot Business Strategy Plan. In turn, each of the areas listed in paragraphs 1a through 1h above will be computed and allocated to the service benefiting from the competition as the competition occurs.

GROUND COMMUNICATIONS ELECTRONICS
BUSINESS BASE
FOR
PRIVATE / PUBLIC COMPETITION



GROUND COMMUNICATIONS AND ELECTRONICS STUDY

FY-92 COMPETITION SAVINGS ANALYSIS

TABLE 1

SERVICE	INTER-SERVICING (PUBLIC/PUBLIC) \$(000)				PRIVATE SECTOR COMPETITION \$(000)			
	WORKLOAD TO BE COMPETED	PROJECTED GROSS SAVINGS	COST OF COMPETITION	PROJECTED NET SAVINGS	WORKLOAD TO BE COMPETED	PROJECTED GROSS SAVINGS	COST OF COMPETITION	PROJECTED NET SAVINGS
ARMY	\$6,211.1	\$745.3	\$186.5	\$559.0	\$0.0	\$0.0	\$0.0	\$0
NAVY	\$18.9	\$2.3	\$0.6	\$1.7	\$276.3	\$55.3	\$11.1	\$44.2
AIR FORCE	\$1,555.6	\$186.7	\$46.7	\$140.0	\$10,000.0	\$2,000.0	\$400.0	\$1,600.0
MARINE CORPS	\$711.1	\$85.3	\$21.3	\$64.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL ALL SERVICES	\$8,496.7	\$1,019.6	\$254.9	\$764.7	\$10,276.3	\$2,055.3	\$411.1	\$1,644.2

GROUND COMMUNICATIONS AND ELECTRONICS STUDY
FY-93 COMPETITION SAVINGS ANALYSIS

TABLE 2

SERVICE	INTER-SERVICING (PUBLIC/PUBLIC) \$(000)				PRIVATE SECTOR COMPETITION \$(000)			
	WORKLOAD TO BE COMPETED	PROJECTED GROSS SAVINGS	COST OF COMPETITION	PROJECTED NET SAVINGS	WORKLOAD TO BE COMPETED	PROJECTED GROSS SAVINGS	COST OF COMPETITION	PROJECTED NET SAVINGS
ARMY	\$12,411.1	\$1,469.3	\$372.3	\$1,117.0	\$35,291.3	\$7,056.3	\$1,411.3	\$5,645.0
NAVY	\$37.8	\$4.5	\$1.1	\$3.4	\$370.0	\$74.0	\$14.8	\$359.2
AIR FORCE	\$3,111.1	\$373.3	\$93.3	\$280.0	\$14,967.5	\$2,997.5	\$599.5	\$2,398.0
MARINE CORPS	\$1,066.7	\$128.0	\$32.0	\$96.0	\$3,400.0	\$680.0	\$136.0	\$544.0
TOTAL ALL SERVICES	\$16,626.7	\$1,995.2	\$498.8	\$1,496.4	\$54,038.8	\$10,807.8	\$2,161.6	\$8,646.2

ALL VALUES INCLUDE FY-92 COMPETITION STILL IN FORCE

GROUND COMMUNICATIONS AND ELECTRONICS STUDY
FY-94 COMPETITION SAVINGS ANALYSIS

TABLE 3

SERVICE	INTER-SERVICING (PUBLIC/PUBLIC) \$(000)				PRIVATE SECTOR COMPETITION \$(000)			
	WORKLOAD TO BE COMPETED	PROJECTED GROSS SAVINGS	COST OF COMPETITION	PROJECTED NET SAVINGS	WORKLOAD TO BE COMPETED	PROJECTED GROSS SAVINGS	COST OF COMPETITION	PROJECTED NET SAVINGS
ARMY	\$18,622.2	\$2,234.7	\$559.7	\$1,676.0	\$70,743.8	\$14,148.8	\$2,829.8	\$11,319.0
NAVY	\$56.7	\$6.8	\$1.7	\$5.1	\$463.8	\$92.8	\$18.6	\$74.2
AIR FORCE	\$4,700.0	\$564.0	\$141.0	\$423.0	\$24,968.8	\$4,993.8	\$998.8	\$3,995.0
MARINE CORPS	\$1,777.8	\$213.3	\$53.3	\$160.0	\$7,200.0	\$1,440.0	\$288.0	\$1,152.0
TOTAL ALL SERVICES	\$25,156.7	\$3,018.8	\$754.7	\$2,264.1	\$103,376.3	\$20,675.3	\$4,135.1	\$16,540.2

ALL VALUES INCLUDE FY-92 AND FY-93 COMPETITION STILL IN FORCE

GROUND COMMUNICATIONS AND ELECTRONICS STUDY
FY-92 TO FY-95 COMPETITION SAVINGS

TABLE 5

SERVICE	INTER-SERVICING (PUBLIC/PUBLIC) \$(000)				PRIVATE SECTOR COMPETITION \$(000)			
	WORKLOAD TO BE COMPETED	PROJECTED GROSS SAVINGS	COST OF COMPETITION	PROJECTED NET SAVINGS	WORKLOAD TO BE COMPETED	PROJECTED GROSS SAVINGS	COST OF COMPETITION	PROJECTED NET SAVINGS
ARMY	\$62,066.7	\$7,448.0	\$1,862.0	\$5,586.0	\$211,681.3	\$42,336.3	\$8,467.3	\$33,869.0
NAVY	\$188.9	\$22.7	\$5.7	\$17.0	\$1,660.0	\$332.0	\$66.4	\$265.6
AIR FORCE	\$15,622.2	\$1,874.7	\$468.7	\$1,406.0	\$89,912.5	\$17,982.5	\$3,596.5	\$14,386.0
MARINE CORPS	\$5,688.9	\$682.7	\$170.7	\$512.0	\$21,400.0	\$4,280.0	\$856.0	\$3,424.0
TOTAL ALL SERVICES	\$83,566.7	\$10,028.0	\$2,507.0	\$7,521.0	\$324,653.8	\$64,930.8	\$12,986.2	\$51,944.6

ALL VALUES INCLUDE FY-92, FY-93 AND FY-94 COMPETITION STILL IN FORCE

GROUND COMMUNICATIONS AND ELECTRONICS STUDY
FY-95 COMPETITION SAVINGS ANALYSIS

TABLE 4

SERVICE	INTER-SERVICING (PUBLIC/PUBLIC) \$(000)				PRIVATE SECTOR COMPETITION \$(000)			
	WORKLOAD TO BE COMPETED	PROJECTED GROSS SAVINGS	COST OF COMPETITION	PROJECTED NET SAVINGS	WORKLOAD TO BE COMPETED	PROJECTED GROSS SAVINGS	COST OF COMPETITION	PROJECTED NET SAVINGS
ARMY	\$24,822.2	\$2,976.7	\$744.7	\$2,234.0	\$105,656.3	\$21,131.3	\$4,225.3	\$16,905.0
NAVY	\$75.6	\$9.1	\$2.3	\$6.8	\$550.0	\$110.0	\$22.0	\$88.0
AIR FORCE	\$6,255.6	\$750.7	\$187.7	\$563.0	\$39,956.3	\$7,991.3	\$1,596.3	\$6,395.0
MARINE CORPS	\$2,133.3	\$256.0	\$64.0	\$192.0	\$10,800.0	\$2,160.0	\$432.0	\$1,728.0
TOTAL ALL SERVICES	\$33,286.7	\$3,994.4	\$998.6	\$2,995.8	\$156,962.5	\$31,392.5	\$6,278.5	\$25,114.0

ALL VALUES INCLUDE FY-92, FY-93 AND FY-94 COMPETITION STILL IN FORCE

GROUND COMMUNICATIONS AND ELECTRONICS STUDY

PRODUCTION COST ANALYSIS WORKSHEET

FY-93 TO FY-95

OPTION 1 PRODUCTION COST ANALYSIS WITH/WITHOUT MATERIAL

WITH MATERIAL	HOURS	FROM	TO	RATE CHANGE	EFFECT	ONE YEAR COST/(SAVE)	3 YEAR COST/(SAVE)
SAAD TO ANAD	100,648	\$60.98	\$69.65	\$8.67	COST	\$872,618	\$2,617,854
SAAD TO TOAD	813,352	\$60.98	\$40.11	(\$20.87)	(SAVE)	(\$16,974,656)	(\$50,923,969)
NET COST/(SAVE)						(\$16,102,038)	(\$48,306,114)

WITHOUT MATERIAL

SAAD TO ANAD	100,648	\$54.27	\$43.68	(\$10.59)	(SAVE)	(\$1,065,862)	(\$3,197,587)
SAAD TO TOAD	813,352	\$54.27	\$34.60	(\$19.67)	(SAVE)	(\$15,998,634)	(\$47,995,902)
NET COST/(SAVE)						(\$17,064,496)	(\$51,193,488)

OPTION 2 PRODUCTION COST ANALYSIS WITH/WITHOUT MATERIAL

WITH MATERIAL	HOURS	FROM	TO	RATE CHANGE	EFFECT	COST/(SAVE)
SAAD TO SM-ALC	914,000	\$60.98	\$55.93	(\$5.05)	(SAVE)	(\$4,615,700)
NET COST/(SAVE)						(\$4,615,700)

WITHOUT MATERIAL

SAAD TO SM-ALC	914,000	\$54.27	\$45.55	(\$8.72)	(SAVE)	(\$7,970,080)
NET COST/(SAVE)						(\$7,970,080)

OPTION 3 PRODUCTION COST ANALYSIS WITH/WITHOUT MATERIAL

WITH MATERIAL	HOURS	FROM	TO	RATE CHANGE	EFFECT	COST/(SAVE)
SAAD TO TOAD	813,352	\$60.98	\$40.11	(\$20.87)	(SAVE)	(\$16,974,656)
SM-ALC TO TOAD	1,306,000	\$55.93	\$40.11	(\$15.82)	(SAVE)	(\$20,660,920)
SAAD TO ANAD	100,648	\$60.98	\$69.65	\$8.67	COST	\$873,062
NET COST/(SAVE)						(\$36,762,514)

WITHOUT MATERIAL

SAAD TO TOAD	813,352	\$54.27	\$34.60	(\$19.67)	(SAVE)	(\$15,998,634)
SM-ALC TO TOAD	1,306,000	\$45.55	\$34.60	(\$10.95)	(SAVE)	(\$14,300,700)
SAAD TO ANAD	100,648	\$54.27	\$43.68	(\$10.59)	(SAVE)	(\$1,065,862)
NET COST/(SAVE)						(\$31,365,196)

GROUND COMMUNICATIONS AND ELECTRONICS STUDY

RATES USED TO ANALYZE PRODUCTION COST

RATE CATEGORY	SAAD	TOAD	ANAD	SM-ALC
IF TOTAL W/MATERIAL	\$63.94	\$42.06	\$73.04	\$67.04
IF MATERIAL ONLY	\$8.29	\$6.58	\$28.25	
IF LABOR ONLY	\$55.65	\$35.48	\$44.79	
CC TOTAL W/MATERIAL		\$40.11		\$55.93
CC MATERIAL ONLY		\$5.51		\$10.38
CC LABOR ONLY		\$34.60		\$45.55
ADJ LABOR RATES	CC FACTOR			
W/MATERIAL	\$60.98	0.954	\$69.65	
W/O MATERIAL	\$54.27	0.975	\$43.68	
RATE APPLIED IN GCE STUDY				
W/MATERIAL	\$60.98	\$40.11	\$69.65	\$55.93
W/O MATERIAL	\$54.27	\$34.60	\$43.68	\$45.55

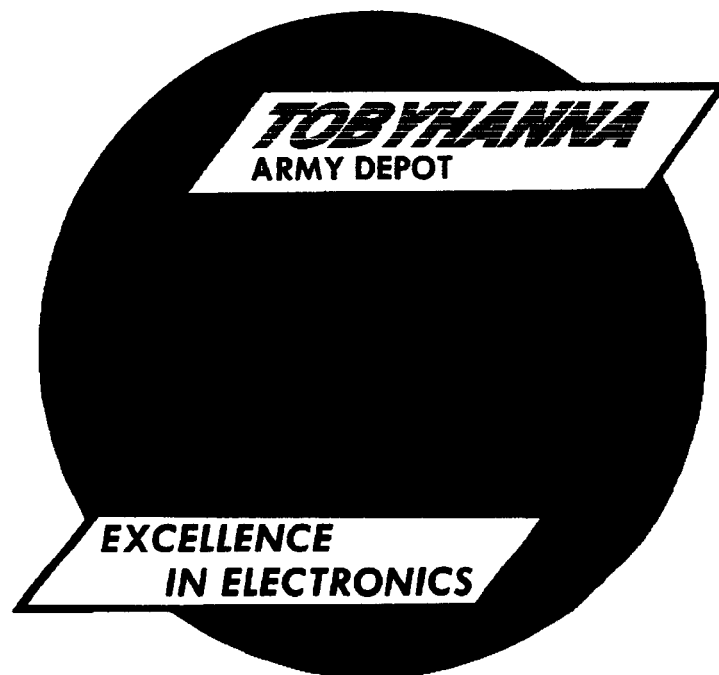
ANAD AND SAAD INDUSTRIAL FUND RATES WERE ADJUSTED BY THE FACTOR FOUND WHEN THE RATE ESTABLISHED BY THE COST COMPARABILITY GROUP FOR TOAD IS DIVIDED BY THE INDUSTRIAL FUND RATE FOR TOAD.

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TOBYHANNA ARMY DEPOT

31 MARCH 1995

STAFF VISIT OF



**BASE CLOSURE & REALIGNMENT
COMMISSION**

MS. ANN REESE

31 MARCH 1995

SUMMARY OF BLUE GRASS ARMY DEPOT TRANSFER TO TOBYHANNA ARMY DEPOT
WORK LOAD TRANSFERRED

- COMSEC
- C-E MAINTENANCE

MANPOWER

BRAC COMMISSION REPORT - 29 DEC 88

24 MILITARY	410 CIVILIANS
	(INCLUDES COMSEC AND ORGANIC)

DA SUMMARY FOR AMY IMPLEMENTATION - FIGURES PROVIDED FOR GAO
VISIT 29 JUN 1988 (PROVIDED BY HQ DESCOM)

18 MILITARY	273 CIVILIAN AUTHORIZATIONS
	(160 COMSEC
	113 ORGANIC)

FIRST ON-BOARD STRENGTH REPORT RECEIVED FROM COMSEC (BGAD)

22 MILITARY	161 CIVILIANS
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ACTUAL TRANSFER

AUTHORIZATIONS:

18 MILITARY	85 CIVILIANS
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PERSONNEL:

18 MILITARY	15 CIVILIANS
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OUT OF 161 ON BOARD WHEN PROCESS BEGAN, 15 TRANSFERRED (9.3%)

NOTE: OF 113 ORGANIC SPACES IDENTIFIED IN 1989, NONE TRANSFERRED;
WORKLOAD WAS ASSUMED WITHOUT ADDITIONAL MANPOWER.

TOBYHANNA ARMY DEPOT
RPM PROGRAM

FISCAL YEAR	J	K	L	M	TOTAL
FY92	3,143,881	7,817,043	1,317,684	5,186,893	17,465,501
FY93	3,135,480	9,043,465	712,834	6,080,595	18,972,374
FY94	5,299,423	6,626,584	224,795	6,094,538	18,245,340

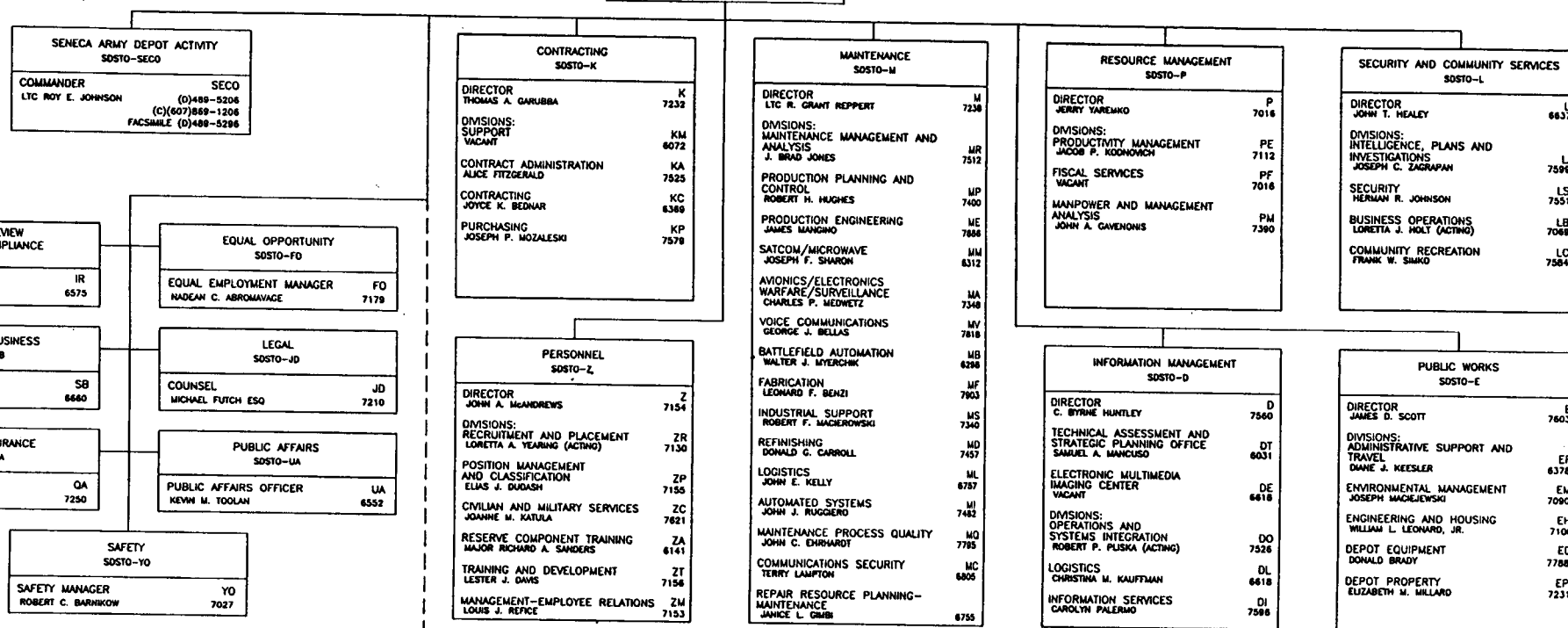
TOBYHANNA ARMY DEPOT

TOBYHANNA, PENNSYLVANIA 18466-5000

STAFF DIRECTORY

OFFICE OF THE COMMANDER SDSTO-C	
COMMANDER	C
COLONEL MICHAEL A. LINQOIST	7201
CIVILIAN EXECUTIVE ASSISTANT	CA
FRANK W. ZARDECKI	7211
DEPOT OPERATIONS OFFICER	CX
ROBERT SKULSKY	7653
DEPOT SERGEANT MAJOR	CM
MSG(P) JOHN SEGURA	7844

PERSONAL STAFF	
ACTING INSPECTOR GENERAL	SDSTO-CI
MAJ RICHARD A. SANDERS	6141
MEDICAL OFFICER	SDSTO-CK
	7225



ATTACHED/TENANT ACTIVITIES

DEFENSE DISTRIBUTION DEPOT TOBYHANNA LTC JOHN J. SHANDOR	DDTP-D 7600	DEFENSE COMMISSARY AGENCY- TOBYHANNA RANDY EPPS	DECA/NE-TOB 7628	US FISH AND WILDLIFE SERVICE EASTERN PENNSYLVANIA FIELD OFFICE JARED BRANDOWEN	USFWS 894-1275
DEFENSE FINANCE AND ACCOUNTING SERVICE-TOBYHANNA RON CARLONAS	DFAS-IN/EM-AW 7137	ARMY-AIR FORCE EXCHANGE SERVICE- TOBYHANNA STEVEN J. MARTIN	AAFE-PX 7630	DEFENSE PRINTING SERVICES-TOBYHANNA ROBERT A. BLASKIEWICZ	7227
US AMC LOGISTICS SUPPORT ACTMITY PACKAGING, STORAGE AND CONTAINERIZATION CENTER OSCAR L. LOLLIS	AMXLS-T 7257	US ARMY CORPS OF ENGINEERS- PHILADELPHIA DISTRICT- POCONO AREA FIELD OFFICE JENNIFER MOTTS	CENAB-OP-RT 6088	US ARMY RESERVE CENTER- 305th SIGNAL COMPANY SFC WALTER E. WHITE, JR.	AFRC-APA-MP-AT 7564
JOINT VISUAL INFORMATION ACTMITY CHARLES C. KOHLER	ASQV-JVA-T 7941	US ARMY CORPS OF ENGINEERS- BALTIMORE DISTRICT- NORTHEASTERN RESIDENT OFFICE JAMES P. MOORE	CENAB-COF-HTS 7052	CECOM LOGISTICS ASSISTANCE DIVISION- TOBYHANNA DAVID SHARSHAN	AMSEL-LC-LA 892-2553
US ARMY DISTRICT TMDE SUPPORT CENTER- TOBYHANNA EUGENE L. LASECKI	AMXTM-CA-T 7188	US ARMY HEALTH CLINIC-TOBYHANNA DR. CARL WEISS	HSXR-TH 7229	SPACE AND TERRESTRIAL COMMUNICATIONS DIRECTORATE-TOBYHANNA JAMES DOMBROWSKI	7284
US ARMY MEDICAL MATERIEL AGENCY- MEDICAL MAINTENANCE OPERATIONS DIVISION- PENNSYLVANIA DANIEL DAWLOVITZ	SGMMA-MDP 7744	DEFENSE REUTILIZATION AND MARKETING OFFICE-TOBYHANNA RICHARD T. NASE	DRMO-ENCF 7453		

EMERGENCY NUMBERS	
AMBULANCE	6666
HEALTH CLINIC	7225
FIRE	117
SECURITY	7550
STAFF DUTY OFFICER	7200

COMMERCIAL NUMBER	(717)894-XXXX
DSN NUMBER	795-XXXX
SECURE FACSIMILE	(D)795-7208
UNSECURE FACSIMILE	(C)(717)894-6224 (D)795-6224
HOTLINE NUMBER	(C)(717)894-7900 (D)795-7900

LEGEND

- UNDER COMMAND CONTROL OF ITS ASSIGNED HEADQUARTERS. RECEIVES ADMINISTRATIVE AND LOGISTICAL SUPPORT
- REPORTS DIRECTLY TO THE DEPOT COMMANDER

10 JULY 1994

SUPERSEDES ISSUE DATED: 19 SEPTEMBER 1993
THIS IS NOT AN OFFICIAL ORGANIZATION CHART

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TOBYHANA

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**



ACOE 1994

TOBYHANNA

ARMY DEPOT**EXCELLENCE
IN ELECTRONICS**

COMMANDER'S STATEMENT

The Army Communities of Excellence (ACOE) Program is a total evaluation process which inspires installations to reflect upon their strengths and weaknesses. Tobyhanna Army Depot has adopted this program as our baseline for installation excellence. ACOE is a "way of life" -- not just an annual appraisal of our contributions to the Army Community. Our commitment to caring exudes a sense of well being for soldiers and civilians alike. Setting and achieving high standards of excellence in services, facilities, and the environment exemplifies our inherent commitment to provide the quality of life so deserving of the men and women who serve our nation.

Tobyhanna Army Depot is looking ahead and planning its future to sustain America's military with the high quality, high technology Communications-Electronics weapon systems that have proven to be force multipliers. The Strategic Plan was developed to provide the guidance, focus, and discipline necessary to ensure that we accomplish our corporate goals and achieve our vision of being "The Communications-Electronics Logistics Center of Choice into the 21st Century." We have instituted a Total Army Quality (TAQ) structure effecting significant organizational change through the use of the TAQ philosophy. Employee Involvement Teams consisting of Process Action Teams (PATs), Self-Managing Work Teams, Special Action Teams (SATs), Quality Circles, and Project/Management Teams, are incorporated throughout the installation. The team concept, through an empowered work force, allows the most productive use of skilled resources to improve our processes and satisfy customer requirements. Thirty four depot personnel are certified as adjunct facilitators to conduct the "TAQ Awareness Course". Since the beginning of FY94, this course has been administered to approximately one third of our total work force. Our Labor-Management Partnership Council (LMPC) provides oversight for the implementation of TAQ philosophies at Tobyhanna and is responsible for the development and execution of Strategic Planning. In November 1993, the depot Commander, Civilian Executive Assistant, and the President, American Federation of Government Employees Local 1647, briefed the first meeting of the National Partnership Council in Washington, D.C., about the benefits of the depot's LMPC. Partnerships such as ours, which has been in existence since 1984, are now directed to be created throughout the Federal Government, by the Vice President's National Performance Review, and a subsequent Executive Order. Vice President Gore has praised Tobyhanna as a model for "reinventing government" by improving the delivery of service and streamlining operations.

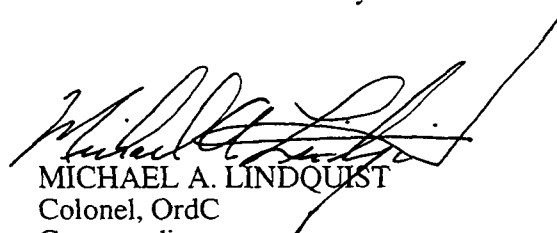
Army communities are in the business of taking care of people. We are committed to providing the best customer service to the soldier in the field, our employees, military families, retirees, and surrounding communities. Forward Repair Activities, an integral component of the Army's core Logistics Power Projection capability, provide on-site maintenance and logistical assistance to expand our services to our most important customer, the soldier. The development of "Hand-Off" Teams enhances customer satisfaction by providing hands-on training to soldiers, greatly improving force readiness. Housing personnel incorporated "self-help" training classes into the "Newcomers Orientation" to afford our incoming depot residents the added convenience of attending a one-stop informational seminar. The U.S. Army Health Clinic published and distributed a Pharmacy Formulary to accommodate individuals seeking pharmaceutical services. A Medical Services Advisory Committee was established to review, assess, and resolve any concerns regarding medical services furnished by the Health Clinic. The Army Community Service Office organized a "Welcome Committee" to greet military members and their families who arrive on post. A Soldier Transfer Assistance Team was established to ease the burdens associated with the transfer of the personnel reassigned by Base Realignment and Closure (BRAC) decisions. A Volunteer Program has been established to assist Morale, Welfare, and Recreation areas. The Directorate of Personnel continues to provide the distinctive, self-developed customer service course entitled "Legendary Service," to 600 personnel annually. This course addresses vital techniques on exceeding internal and external customers' expectations. The "Leadership, Education, and Development" Course was reinstituted into our Supervisory Excellence Program. This course incorporates training of the nine Army leadership competencies and emphasizes group interaction, team building, and effective communications. Our Operation Santa Claus effort generated \$120,000 in money and merchandise, which was donated to 45 area charitable organizations. Our Combined Federal Campaign exceeded its goal of \$94,000 and raised \$103,500,

benefiting local, national, and international charitable organizations. Weekly blood drives at Tobyhanna collect more than 2,000 units of blood annually for the Red Cross. Security personnel volunteer and assist the American Red Cross by forwarding family emergency notification calls to soldiers stationed worldwide. The Security Division sponsors the successful Officer Friendly and McGruff the Crime Fighting Dog Program, conducts drug awareness presentations, and sponsors a child safety belt program.

Excellent facilities play a key role in sustaining our vision and achieving our long-range planning initiatives. An extensive renovation of the Post Restaurant included redesigning serving lines, improving overhead lighting, updating serving equipment, and adding color-coordinated flooring, tables, and chairs. The newly renovated entrance way to the main Administration Building provides a powerful first impression and was designed to fully assist the handicapped. The refurbished Mack Fieldhouse includes a new 28' X 90' fitness room expansion, renovated locker and shower facilities, a new gym floor, and refinished racquetball courts. The newly constructed Digital Communications facility, a MACOM Telephone Modernization Program, provides Tobyhanna with state-of-the-art Integrated Services Digital Network (ISDN) capabilities. The recently completed Communications Security and Satellite Communications Mission Facilities epitomize state-of-the-art construction and was designed with productivity and efficiency in mind. The installation of modular workstations throughout the depot maximizes available space, while creating a comfortable well-organized work place that fosters teamwork.

Tobyhanna Army Depot is a leader in environmental stewardship and safety. The Environmental Management Division has implemented TAQ to continuously improve our programs. Hazardous waste generations were reduced by 84 percent; waste reduction strategies were developed to further reduce materials which were once destined for landfills; and controls were strengthened to ensure safe, quality drinking water is provided throughout the depot community. We developed a comprehensive Natural Resource Management Plan and inventoried 175 acres of protected wetlands for threatened endangered species. Our successful recycling program reduced the amount of municipal waste sent to landfills by conserving the use of 52,230 cubic yards of landfill space, and achieved a recycling rate of 72 percent. Tobyhanna received the Pennsylvania Governor's Waste Minimization Award in the Industrial Category for a second consecutive year and was recognized by the Northeast Pennsylvania Environmental Stewardship, Partners in Protecting the Environment Program, and the Pocono Northeast Community Awards Program for notable, outstanding environmental achievements. Our Safety Program is proactive and has earned the HQ DESCOM Safety Award for two years in a row.

Tobyhanna Army Depot's initiatives exemplify a commitment to customer service excellence and facility excellence. We provide top level service to our customers and legendary support to the soldier, while simultaneously contributing our services and support to the surrounding communities. Collectively, Tobyhanna Army Depot's civilian and military work force produces quality electronic products for our soldiers in the field because of a dedicated work ethic that is second to none. Cost effectiveness and efficiency are the watch words of the day and are reflected in all that we do everyday.



MICHAEL A. LINDQUIST
Colonel, OrdC
Commanding

**TOBYHANNA ARMY DEPOT'S
POPULATION STATISTICS**

ACTIVE DUTY MILITARY	45
MILITARY FAMILY MEMBERS LIVING ON POST	110
MILITARY FAMILY MEMBERS LIVING OFF POST	15
DOD FULL-TIME CIVILIAN EMPLOYEES	3,527
PERMANENT CONTRACT EMPLOYEES	115
TOTAL POPULATION	3,812

STRATEGIC PLANNING FOR SERVICE AND FACILITY EXCELLENCE

Tobyhanna Army Depot's vision, "The Communications-Electronics Logistics Center of Choice into the 21st Century," defines the business boundaries of the depot and the ultimate objective of the depot's plans. This vision statement is indicative of the rapidly changing environment in which we must compete to survive. The Tobyhanna team continually strives to improve services and facilities while remaining productive and cost effective, ensuring customers' needs are always satisfied.

- The Strategic Action Plan was developed to take Tobyhanna Army Depot into the 21st century by providing a strategy to achieve our vision of the future. It focuses on improving and balancing cost efficiency, maximizing participation and commitment at all levels; improving quality enhancement processes; completing programs and projects on time; increasing Tobyhanna's overall military value; and increasing our ability to satisfy all customers, both internal and external. The plan addresses Tobyhanna's vision, mission and organizational objectives; Total Army Quality (TAQ) philosophies; analysis of internal functions; and planning initiatives for the depot's strategic objectives. This plan is the first step in a long process of continuous improvement and innovation that will chart our course into the future.
- The Total Army Quality (TAQ) infrastructure is linked with Tobyhanna's Strategic Plan. This provides a clear sense of direction which comes from well defined goals and objectives. The three elements of the TAQ infrastructure are the Labor-Management Partnership Council (LMPC), Quality Councils, and Employee Involvement Teams (EITs). Commitment to TAQ is evident in the fact that 34 employees received four weeks of training given by the Army Management Engineering College, thus certifying them to teach four courses under the title of "TAQ Awareness." To date, this course has been administered to 1,000 personnel. Tobyhanna has total "in-house" training capabilities that provide "Just-In-Time" training for all phases of TAQ. Process Actions Teams (PATs), one facet of EITs, continue to be successful. Several examples include the Credit Card PAT streamlining the current work process for use of credit cards as well as broadening usage of the card; the Automated Nonworkable PAT significantly impacting fabrication areas by highlighting the need for increased training and revised operations; and the Printed Wiring Board PAT increasing production from 40% to 90%.
- The LMPC, established this year, provides a forum for labor and management to come together in full partnership to work on common objectives; take the lead in planning, promoting, and implementing labor-management partnerships and TAQ at organizational levels throughout Tobyhanna; implement the results of the National Partnership Council (NPC); streamline the decision-making process; broaden employee involvement; and improve communications. The LMPC is comprised of the Commander, Civilian Executive Assistant, Director of Personnel, Director of Resource Management, Union President, three members of the Executive Council, two management-appointed delegates, and two union-appointed representatives. Tobyhanna was one of three organizations invited to brief Vice President Gore and the NPC on the benefits of labor-management cooperation. The briefing presented information regarding increased competitiveness and productivity; streamlined contract negotiations, minimal labor disputes and grievances; and increased worker participation in daily operations. During the NPC briefing, Vice President Gore praised Tobyhanna's efforts as a model for "reinventing government."
- Tobyhanna Army Depot has aggressively pursued unique opportunities to solidify our future to become the "Communications-Electronics Logistics Center of Choice into the 21st Century." This is illustrated by Tobyhanna's aggressive efforts to interservice all DOD Ground Communications-Electronics (GCE) workload at Tobyhanna, our definition of core workload, and our recent "Teaming with Industry" initiative. Significant support was provided to the DOD Interservicing analysis through briefings to congressmen and DOD representatives addressing cost savings, improved capacity utilization, and recommendations for workload consolidation. Tobyhanna's identified core workload is critical to warfighting equipment/systems and is imbedded in many platforms including tanks and helicopters. The proper determination of this workload directly affects Army readiness and is vital to the future Army. The initial partnership venture with the Command and Control Vehicle (C2V) places Tobyhanna in the role of a subcontractor to those prime contractors who elect to use Tobyhanna in their proposals. Our

capability as a systems integrator in the testing and maintenance of electronics systems is how the "Teaming with Industry" concept epitomizes Tobyhanna's position as an integral part of the industrial base, working side by side with private industry as a full partner in support of national defense.

- A Special Action Team was established to develop an internal marketing strategy to generate "Storyboards" depot-wide. A "Storyboard" is a uniform display prominently exhibited in each work site which provides a descriptive and pictorial format for employees, prospective customers, and depot visitors. Storyboards describe the mission services, capabilities and success stories, and serve to inform the work force about how their individual initiatives contribute to the global depot picture, and ultimately the soldier in the field.
- Tobyhanna Army Depot has many customer service programs in place to ensure achievement of our ongoing commitment to service excellence. These initiatives include the establishment of "Hand-Off" Teams which enhance customer satisfaction, maintenance of a 24-hour customer service hotline to act as a central clearing house for inquiries, implementation of site visits to assess our customer services, establishment of Forward Repair Activities to provide on-site maintenance and logistical assistance expanding our services to the soldier in the field, and management of the Communications-Electronics Liaison Office to maintain effective relations with our largest customer. Tobyhanna continues to provide the self-developed, unique customer service course, entitled "Legendary Service," which covers vital techniques to exceed customer expectations, and obtain a greater appreciation for who our customers are and why they are so important. We have trained 600 depot personnel this year with the goal of expanding the program to instruct 1,800 employees annually.
- Master planning establishes the crucial link between the installation's vision and the real property assets needed to meet these goals. We have completed several components of the Master Plan to include the Installation Design Guide (IDG) and Landscaping Plan. We are preparing new digitized maps of the depot and have contracted through the Corps of Engineers to complete the remaining portions of the Master Plan. All components will interact so, as new ideas develop, they can be appropriately integrated with current and completed initiatives. For example, the IDG in conjunction with the depot's Landscaping Plan have played a significant role in establishing land attributes. Buffer zones have been defined between administrative, industrial, and common use areas. The architectural and landscaping principals are applied to these areas resulting in an aesthetically pleasing, functionally coordinated installation.
- Significant quality-of-life improvements have been completed throughout the depot to include the complete renovation of the Post Restaurant, refurbishment of the entrance to the main Administration Building with an elevated ramp for handicap accessibility, construction of a state-of-the-art Digital Communications facility, renovation of the fitness center, an addition to the Mack Fieldhouse, refurbishment of rest rooms, and modernization of office areas to include ergonomically designed furniture. The addition of "Boulder Field," just one of numerous handicapped accessible picnic pavilions constructed this year, allows employees to spend their break and lunch periods in a relaxing atmosphere while enjoying the noontime recreational "self-help" softball league competition on the adjacent ball field.
- Tobyhanna Army Depot, through its long-range strategic plan, provides a quality workplace that meets the ever-changing needs of the mission and people. The completion of the 160,000 square foot Communications Security Facility epitomizes a state-of-the-art facility designed with productivity and efficiency in mind. The spacious work areas are well lit and ventilated, and the ergonomically-designed work stations and benches improve employee morale by providing a safe and comfortable atmosphere while reducing fatigue and congestion. The centralization of the Satellite Communications (SATCOM) Mission Facility resulted in an area that was not only conducive to increased productivity and efficiency, but enhanced the quality of life for SATCOM employees. This attractive modern facility consolidated, under one roof, several areas previously located in various parts of the depot. The end result is a cost effective, productive area which benefits the customer as well as the employee. In both facilities, special break areas, designed with the employee in mind, include kitchenettes with ample counter and cabinet space, as well as microwaves, refrigerators, vending areas, and televisions to meet the quality of life needs of employees.

To attain our vision, we link our labor-management partnership infrastructure with our Strategic Plan. This results in a labor-management partnership in which all organizations throughout the depot have "ownership" of the corporate objectives and a commitment to accomplish them on time and within cost.

TOBYHANNA

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PUBLIC AFFAIRS

Tobyhanna Army Depot conducts a customer-oriented public affairs program aimed at exceeding the needs of its diverse audiences, including the installation work force, family members, military and civilian retirees, Reserve Component personnel training at the depot, the news media, and the local communities.

- The Public Affairs Office (PAO) is the focal point for information requests about the depot and the Army in general. Numerous on-post and off-post calls are processed daily, and walk-in traffic is substantial. Adjacent to the main lobby in the Administration Building, the PAO's location is ideal for greeting and receiving visitors. The lobby includes a large-scale model of the installation, which facilitates the orientation of first-time visitors and houses displays and exhibits, promoting such events as Black History Month, American Heritage Week, and the commemoration of World War II. Our policy continues to be that a PAO representative is always available to receive visitors or answer phone calls. All staff members are cognizant of the importance of courteous and efficient responses to requests for information and assistance, and have earned accolades from satisfied customers. The following quote from an Armed Forces Day 1994 visitor reflects the depot's commitment to customer service: "When I called your Public Affairs Office, I was given such a detailed list of the day's schedule by a kind gentleman, and on base by a (soldier), who was especially sincere and friendly to us."
- The PAO utilizes modern electronic media for information dissemination, including a depot-wide public address system, television network, and a new electronic message board. Each office member has a dedicated personal computer tied to a powerful client/server computing network. This architecture enhances information gathering and dissemination and also allows local unique applications, such as the use of ALDUS Pagemaker for desktop publishing. The television network is used to "scroll" information to the work force and to provide the commander another vehicle for keeping the depot work force well informed. The new electronic message board, strategically placed for maximum exposure, is used to recognize individual achievements, and provide highway and weather conditions to the depot work force whose average daily commute is in excess of 45 miles.
- The Protocol Officer, co-located with PAO, is vital to Tobyhanna providing outstanding customer service in coordinating visits and facilitating all arrangements to make these visits a success. Tobyhanna hosts 3,500 official visitors annually to include U.S. senators and representatives, general officers, members of the Senior Executive Service, other high-profile visitors, and customers. To guarantee consistent, quality service for each visitor, the Protocol Officer developed a form, which serves as a checklist and assists depot personnel in coordinating each visit. The Protocol Officer continues to present briefings at the depot's Total Army Quality-inspired "Legendary Service" course on the importance of arranging visits and hosting depot visits.
- The Tobyhanna PAO has always had an extensive news release program providing factual, topical information about depot missions and personnel. Our long-established policy to provide, at a minimum, an interim response to media queries within two hours of the initial request, has gained the appreciation of reporters and editors by enabling them to meet deadlines on such topics as base closure and other military issues. Although there has been a minimal need for a set-the-record-straight program, we continue to have a policy in place to immediately review inaccurate information and determine appropriate methods of response, usually within 24 hours. The PAO has recently developed the command information plan to identify topics and methods of communicating internal information. The Public Affairs Officer provides his home phone number to all local media representatives, key depot officials and the staff duty officer for instant access on fast-breaking news stories, no matter the time of day or night. This practice has enabled the news media to receive critical information which might not occur if he "could not be reached for comment." For example, the depot received favorable coverage when its HAZMAT team responded to a vehicular accident on nearby Interstate 380. The PAO was contacted at 2230 hours on a Sunday and was able to provide information to the media about the depot's HAZMAT team and confirm the team had responded.

- An aggressive editorial board policy was recently initiated. To date, three editorial boards have taken place, with the depot commander meeting with local top officials from one weekly and two daily newspapers. These boards have resulted in expanded news coverage and a greater understanding of issues facing the depot and the Army as it restructures for the 21st Century. Additional editorial boards are planned with print and electronic media editors. Maintaining an effective community relations program has resulted in Tobyhanna expanding its contacts with key community groups and adding to local understanding of the depot, its missions, and its importance to the regional economy. Requests for Tobyhanna's commander and other officials to speak to business, fraternal and professional groups has increased 25 percent.
- To educate and inform students and the general public, Tobyhanna moved its two-day Armed Forces Day Open House from a Thursday/Friday to a Friday/Saturday format. Attendance grew from 6,100 in 1993 to nearly 13,000 in 1994. The PAO obtained an agreement with the National Park Service's Steamtown Historic Site to run a special rail excursion from its facilities in Scranton to the depot. More than 550 regional rail fans were aboard for the trip. Additional events included a Civil War living history encampment, model airplane demonstrations, an exhibit of World War II military vehicles, a celebrity softball game, and a craft show. The PAO coordinated the participation of depot employees in an applied economics program sponsored by Junior Achievement (JA) at Pocono Mountain High School. The culmination of this year's JA program was a student tour of the depot which was televised by a local news station. Tobyhanna regularly conducts other educational programs with numerous regional schools, such as exposure to various professions, "Shadow Days," and tours and demonstrations in various depot work areas.
- Under the direction of the PAO, depot participation in programs of regional scope continues to grow. More than 20 key depot officials now serve on various committees and subcommittees of the Pocono Mountains, Scranton, and Wilkes-Barre Chambers of Commerce and the Economic Development Council of Northeastern Pennsylvania. The PAO also actively pursues all avenues to identify new areas for cooperative efforts. This effort resulted in Tobyhanna hosting the Pennsylvania Governor's Northeast Technology Conference, an annual event that highlights technological developments benefitting firms in Northeastern Pennsylvania. The depot is a designated World War II Commemorative Community, dedicated to observe the 50th anniversary of World War II and has joined with the Northeastern Pennsylvania World War II Victory Committee to design and build a World War II monument at the depot. Through a volunteer effort, the PAO acquired the services of a recently retired depot executive to serve on the World War II Victory Committee. A videotape, consisting of interviews with local World War II veterans, was developed to inform the public of this event.
- The PAO provides support to Army Reserve and National Guard units which train at Tobyhanna. Photographs are taken and news releases prepared for publications in these units' command publications and local newspapers. This effort highlights the accomplishments of the single soldier and Reserve Component soldiers and the valuable support they provide to the total Army.
- To be responsive and improve communications throughout the installation, the "Tobyhanna Reporter" was consolidated with a weekly bulletin and a community calendar, designating it as the primary source of internal information. Publication was expanded from monthly to weekly, increasing the flow of information to our audiences. Our newspaper incorporates a number of features to foster two-way communications, including a Commander's Column, the Sound Off Column, and a letter-to-the-editor feature which provides valuable feedback to the Commander. The Commander's Column is used to inform audiences about such topics as environmental protection, equal employment opportunity, safety, and training. The implementation of desktop publishing was essential in reducing the per issue cost of printing the newspaper and gave the paper a cleaner, more modern design. All efforts have resulted in the "Tobyhanna Reporter" and its editor being selected for a second-place award in the Army Funded Newspapers, Large, category of the 1993 U.S Army Materiel Command Journalism Awards Competition.

Our goal, to strive for continuous improvement through customer satisfaction, has caused us to develop a customer feedback survey to evaluate our services. In recognition of the dedication of the World War II monument, in 1995 Tobyhanna has planned numerous events to appropriately commemorate this occasion, including a Salute to World War II Industries and an Army Air Corps/Air Force Day which reinforces our long lasting relationship with the local community.

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PUBLIC SAFETY

Always conscious of our responsibility to provide a safe and healthful environment for employees, residents, visitors and the local community, Tobyhanna Army Depot continues to take an aggressive approach to public safety. A Safety Office, the Public Works and Security and Community Services Directorates are committed to enhancing depot safety and aggressively seek new ways to improve operations. Emphasis has been on contingency planning and preventive actions, with particular attention paid to the safety education of our children.

- Recognizing our duties actually represent services which are provided to customers, security, fire and hazardous material response personnel have completed or are completing training in "Total Army Quality (TAQ) Awareness" and "Legendary Service" courses. One Security Division supervisor is trained as a TAQ instructor.
- The Security Division received the U.S. AMC's Small Security Force Award for developing successful, innovative programs. Personnel implemented the newly developed Registration and Access Control System (RACKS), to store information on vehicles, ID badges, personnel, weapons, and emergency points of contact for buildings and key card holders. RACKS constitutes an easily accessible, single source of vital security-related information and enhances the division's ability to react quickly in emergency situations. Presently, information on 3070 badges, 2260 vehicle registrations, 1470 drivers' licenses, and 370 civilian ID cards resides in the system.
- As of June 1994, 26,168 visitors were processed through Tobyhanna's Security Headquarters. Over 50,000 visitors are projected by fiscal year end, not counting the 70 delivery vehicles which pass through depot gates on a daily basis. Security Division has created a new form to replace the three forms currently in use significantly streamlining the processing of visitors and enhancing Tobyhanna's image as an efficient, responsive, and customer-oriented facility. Security Division provides logistical assistance to National Guard and Reserve component convoys, totaling approximately 8,000 personnel in 4,000 vehicles, traveling through Northeastern Pennsylvania. Personnel provided security services to over 13,000 visitors attending the depot's Armed Forces Week events.
- In the spirit of community involvement, Security Division employees provide assistance to the Coolbaugh Township Police Department at accident scenes off post. Personnel volunteered to assist the American Red Cross by forwarding family emergency notification calls to soldiers stationed worldwide. Security personnel sponsor the successful Officer Friendly and McGruff the Crime Fighting Dog Program, conduct drug awareness presentation to 300 Boy Scouts at a local state park, present tips on school bus safety and the danger of talking to strangers for 200 school children, sponsor a child safety seat belt program including distribution of teddy bears at the depot Child Care Center, conduct a fingerprinting identification program, undertook an ID picture card program for handicapped adult residents of the nearby Devereaux Foundation Home, participate in the Monroe County Highway Safety Program, and donate a child safety seat to a needy family.
- The Tobyhanna Army Depot Fire Department is also closely allied with the local community through its support for fire prevention training and mutual aid agreements. The Fire Department has supplied manpower and equipment for fire fighting response five times this year, including assisting at major tire pile and department store fires. The department belongs to local firemen's organizations at all levels and regularly trains with those organizations, not only to sharpen their skills, but also to develop a solid working relationship with members of these local departments. The Fire Department is augmented through an Auxiliary Fire Fighter Program in which 10 individuals from the work force are trained monthly to enhance response capability should the Fire Department encounter an incident requiring additional manpower. These personnel are mostly volunteer fire fighters in their community, and are already familiar with fire fighting equipment and techniques. Full protective gear is maintained at the Fire Station for these auxiliary members, and training includes all aspects of fire suppression.

- Tobyhanna's approach to fire safety has always been proactive and, as such, the depot has long been involved in fire protection engineering. All prospective construction is processed through the Fire Department for review and input. All major structures at the installation have sprinkler protection backed up by smoke and heat detectors and building alarms. This year, the newly completed Satellite Communications and Communications Security facilities were integrated into the existing depot system. Tobyhanna is upgrading the entire fire alarm reporting system from telephone wire to a more reliable radio alarm system.
- Mindful that knowledge is the best defense against fire danger, Tobyhanna Army Depot's Fire Department makes every effort to ensure the depot population is alert and aware, both at work and at home. Fire prevention awareness is continually upgraded through weekly bulletins, announcements on the public address system, new employee orientation briefings, holiday reminders, and fire drills. Family Housing occupants receive regular fire prevention awareness training. Smoke detectors are an integral part of the on-base housing program, and a fire prevention walk-through of all quarters is accomplished annually. Tot Finder stickers, emergency telephone number stickers, and fire prevention checklists are distributed to all new housing tenants and are also available throughout the year at various fire prevention briefings, Town Hall Meetings, and "self-help" classes, as well as from housing preventive maintenance crews.
- Fire Prevention Week is always a major event for the Tobyhanna Army Depot Fire Department because it provides personnel an opportunity to teach and interact with area children. Approximately 850 second graders are invited to the depot fire station each year for a tour of station facilities, a demonstration and explanation of fire equipment, and a film and discussion on fire safety. They are also treated to a ride on a fire truck and are given Junior Fire Marshal helmets and fire prevention literature which can be discussed at home. An appearance by Smoky the Bear and a sweet treat round out the day.
- In addition to firefighting and prevention, personnel provide ambulance and emergency medical services. The depot is 25 miles from the nearest acute care facility, increasing the time emergency medical personnel must maintain life support. Accordingly, department personnel maintain Emergency Medical Technician certification and are fully qualified and ready to respond to all emergencies. As with fire response, Tobyhanna maintains mutual aid agreements with local communities. This year, emergency medical crews responded to 190 incidents, including a number of heart attacks, vehicle accidents, and a birth.
- To maintain the highest level of readiness and increase its overall capability, the fire department recently completed several modernization projects. The fire station was remodeled and two full ambulance bays and a storage area were added. The department purchased a personal computer and two new vehicles: a pickup truck with a portable tank and a step van utility vehicle equipped with air packs, tools for maintaining fire alarm and sprinkler systems, and absorbents for hazardous spill response.
- Tobyhanna Army Depot's excellent environmental record is, in large part, attributable to the work done by the depot's Hazardous Material Spill Response Team. Closely supported by the depot fire department, the team serves as first responders to all types and sizes of hazardous material spills ranging from small fuel spills to major accidents occurring off depot grounds. Training and support equipment are priorities in this most important program. This year, two team members became certified to teach hazardous material spill response techniques and now teach refresher courses to the entire team. Through a "self-help" volunteer effort, they also teach response techniques to local fire departments. As part of a mutual aid agreement with local communities, team members were recently dispatched to the scene of a serious accident which occurred a few miles from the depot. The team cleaned up the site and properly disposed of three 55-gallon drums of spilled hydraulic oil and diesel fuel and a dozen doubled plastic bags of contaminated debris.

To maintain a high standard of excellence, Tobyhanna's public safety-related organizations are expanding their community support programs. Plans are in place to purchase a new ambulance and a hazardous material spill response vehicle, renovate the Security Headquarters, install automatic security turnstiles adjacent to Security Headquarters, and implement laser print ID card technology to eliminate the need for film to produce employee ID cards.



ENGINEER SERVICES AND FACILITIES

Legendary Service is the philosophy used by the Directorate of Public Works to ensure customer satisfaction is achieved. We aggressively pursue facility and environmental improvements to enhance the quality of life for military and civilian personnel. Our main goal is to find new and innovative ways to meet the challenge of providing excellent facilities and customer service.

- By contracting with the Baltimore Corps of Engineers, Tobyhanna has completed several major components of our Installation Master Plan to include the Installation Design Guide and the Landscape Development Plan. One major enhancement to the depot was the completion of a handicap accessible entrance to our Administration Building. The stately entrance sports a raised contoured cul-de-sac that will greatly enhance the quality of life for visitors and employees alike. Beautiful landscaping, surrounded by detailed lighting, gives our customers and visitors a lasting impression of the pride we feel and share at Tobyhanna Army Depot. The Master Planner position had been vacant for the past four years. Since the addition of the newly appointed planner, we are performing a needs assessment to develop all aspects of the master plan. The Master Plan, paralleling the goals of the Strategic Plan, will not only include the traditional real property issues, but will incorporate a space utilization study, utility analysis, and a repair and maintenance planning system. When completed, the Master Plan will provide a road map to achieve Tobyhanna's vision and maintain community excellence into the 21st century.
- We are a customer service organization for new construction, remodeling, and maintenance of real property. The ever-expanding mission requirements have given us an opportunity to grow with customers' needs. One unique example is the construction of white brick monuments, located at each gated entrance way, proclaiming Tobyhanna Army Depot's excellence in electronics. These monuments were constructed by Keystone Job Corps students and illustrate Tobyhanna's ability to make great improvements, at low cost, while providing educational opportunities to individuals in the community. Our valued employees enthusiastically volunteer to attend the "Total Army Quality (TAQ) Awareness," "Legendary Service," and "Leadership, Education and Development" Courses. In support of the depot's TAQ Plan, several directorate employees volunteer as adjunct facilitators to administer these courses.
- Tobyhanna Army Depot, nestled in the heart of the Pocono Mountains of Northeastern Pennsylvania, is surrounded by natural beauty. Buildings and Grounds personnel continually enhance Tobyhanna's grounds by planting trees and flower beds in strategic locations to include traffic islands, entrance ways, and sidewalks. The depot is constantly groomed with a regular maintenance schedule to preserve a well-kept appearance.
- Tobyhanna Army Depot is committed to meeting energy goals through an aggressive nine point energy conservation plan. This plan is aimed at the continuous improvement of facilities. As a first step, new energy-efficient windows have been installed throughout the depot. In the second phase, an energy monitoring control system will be installed to automatically target areas using energy in excess of goals established by Executive Order 12759. Tobyhanna personnel are teaming with Pennsylvania Power and Light Company to identify ways to improve the efficiency of our central heating plant operation and train heating plant personnel. These steps are designed to reduce energy consumption 30% by FY 2005.
- Significant emphasis is placed on scheduling maintenance requirements to avoid unnecessary repair work through contributions to our proactive utility maintenance program. Preventive repair work is scheduled in advance to provide uninterrupted services and improve customer relations. Critical systems for mission essential work are backed up with standby equipment to ensure continual operation. Tobyhanna completed a major overhaul of the boiler plant during the summer months to avoid unnecessary downtime. To ensure our customers uninterrupted service, two temporary boilers were obtained to provide steam year round for those areas which require it.
- The Work Order Clerk is a centralized customer-oriented center for prioritizing and processing individual job and service orders. Realizing the importance of keeping customers continuously apprised, the work

order database system was revised, allowing users to perform self-directed queries to obtain immediate status of work orders.

- To improve the response time to our customers' needs, the Public Works Directorate personnel actively participate in the Commercial Credit Card Program. This program allows employees to purchase low-dollar, off-the-shelf supplies, to reduce critical downtime. A nine member Process Action Team (PAT), consisting of representative experts throughout the depot, was established, ensuring continued success of this program. Within a four month period, the team surveyed credit card users, analyzed processes, streamlined the process from 11 to 6 steps, improved the form for customer ease, and reduced computer input. Under the philosophies of TAQ and never ending improvement, the team will again survey users in six months to gain insight into further refinements.
- Regulatory compliance, restoration, documentation, and Natural Resources Management are the key components of Tobyhanna's environmental program. The environment is protected through our stewardship of natural resources. Water conservation efforts resulted in a 1993 reduction of 5.8% in water consumption. A toxic reduction evaluation was completed to determine the source of contaminants in our water waste streams and how to best reduce them. Our air program reduced volatile organic compound emissions from 48 tons in 1992 to 27 tons in 1993. The depot developed a comprehensive Natural Resource Management Plan and has inventoried 175 acres of protected wetlands for threatened endangered species.
- Tobyhanna has taken on worldwide environmental initiatives by sending teams of maintenance personnel (well over 100 employees) to Europe as part of the Army's Ozone-Depleting Chemicals Elimination Program. Shelters and vans with air conditioning units that contain chlorofluorocarbons (CFCs) are being refitted with new air conditioners that are designed and built at Tobyhanna. Technicians received U.S. Occupational Safety and Health Administration training to ensure the conversion occurs in an environmentally sound manner.
- The Environmental Management Division has implemented TAQ to continuously improve program and personnel areas. Personnel were empowered to use their skills, talents, and energies to strengthen compliance with environmental laws and Army regulations, and find innovative ways of meeting the challenges ahead. The results have been astonishing: hazardous waste generations were reduced by 84 percent; waste reduction strategies were developed to further reduce materials which were once destined for landfills; and beneficial uses were found for 4.2 tons of fly ash and bottom ash generated at the main boiler plant. Controls were strengthened to ensure safe, quality drinking water is provided; a back flow prevention program was established; and a storm water management program was developed to help reduce the amount of pollutants entering storm water runoff. An asbestos management plan was implemented and asbestos surveys performed. Over the past three years, approximately \$1.2 million have been expended to remove damaged asbestos. An air emissions inventory was completed to identify criteria and hazardous air pollutants and a data base developed to calculate and monitor emissions annually. Tobyhanna Army Depot is a true leader in environmental stewardship and has achieved the goals of the Installation Management Action Plan.
- In recognition of Tobyhanna's environmental achievements, we received the Pennsylvania Governor's Waste Minimization Award in the Industrial Category for a second consecutive year and were recognized by the Northeast Pennsylvania Environmental Stewardship and the Pocono Northeast Community Awards Program. Tobyhanna recently won an award from the Partners in Protecting the Environment Program and competed nationally in the Renew America Awards Program. In addition, environmental representatives actively participate in the Monroe County Solid Waste Advisory Committee, Mt. Pocono Chamber of Commerce's Environmental Committee, Monroe County Emergency Planning Agency, Pennsylvania Resources Council, and Pennsylvania Water Environment Association. The Environmental Management Division sponsors Tobyhanna's participation in PennDOT's Adopt-a-Highway Program. Through a "self-help" effort, depot volunteers pick up litter, four weekends a year, along a 2-mile stretch of Interstate 380, two entrance/exit ramps, and the State Route leading to the depot's main gate.

To achieve excellence into the 21st century, the Public Works Directorate has taken a proactive approach to provide the best possible services and facilities to our customers. To accomplish this, we are upgrading the roofing management system, analyzing utilities and mechanical systems, and developing FY96 and FY97 programs.

HOUSING SERVICES AND FACILITIES

Our housing staff is dedicated to providing personalized customer service and newly updated facilities to all military members, their families, and civilians traveling to Tobyhanna Army Depot.

- The "Tobyhanna Pines" Housing Complex consists of 40 town houses which accommodate all members of the Armed Forces assigned within an hour commuting distance of the installation. Privacy fencing installed between the town houses ensures each resident a quiet and serene residential setting. The well-maintained officers' quarters affords a "country charm" view of the scenic Pocono Mountains. Our guest houses provide complete modern accommodations for military families who are in the process of a Permanent Change of Station (PCS). All housing units are conveniently located near the four-acre lake, Community Club, and beautiful recreational areas to include Tobyhanna's swim complex, tennis courts, Mack Fieldhouse, and hiking trails.
- Through a total team effort with Army Community Services, Housing personnel incorporated "self-help" training classes into the "Newcomers Orientation." This affords our incoming depot residents the added convenience of attending a one-stop informational seminar. Tobyhanna's Housing Division orchestrated a "self-help" training program that is the embodiment of customer service. Instruction is provided on how to repair or replace items so occupants can accomplish work to reduce residential maintenance costs. At the end of the training, participants are issued a credit card, provided an in-depth briefing on the items and services available at the "self-help" store, and assisted in making their newly assigned quarters their "home."
- As a result of a community "self-help" effort, the family housing playground areas were recently restored to their original state. The Housing Division furnished residents the supplies, materials, and tools to accomplish this project. This successful effort has fostered community spirit among the neighbors, while providing safe recreational areas for their youngsters.
- Our newly established "Court-of-the-Quarter" Program encourages occupants to compete in beautifying their courtyard through "self-help" improvement endeavors. In October, Tobyhanna plans to implement the "Holiday House" Program to recognize the home with the most innovative exterior holiday displays or decorations.
- Tobyhanna is designing a commendation card, entitled "Bet You Thought We Didn't Notice." This initiative provides a forum for housing personnel to commend residents for exceeding the boundaries of general housekeeping and encourages residents to take pride in their quarters, thereby depicting a "pride-in-ownership" spirit throughout the housing complex. Implementation of this program is planned for October 1995.
- As a convenience to our customers, family housing waiting lists for three and four-bedroom units are updated daily and posted weekly in our Housing Office and each military unit. All updated lists are also electronically transmitted to each military unit to ensure prompt notification. We expanded the accessibility to the waiting lists by positioning them at the Post Exchange, Commissary, and Community Club.
- Tobyhanna's Housing Division is conducting a Real Estate Symposium at the Housing Office to enhance the quality of life and improve the living environment for our clients. Real estate professionals and property owners throughout a five-county area are invited to provide us with a means of expanding our Community Homefinding, Relocation, and Referral Service (CHRRS) Program by familiarizing the attendees with our location and mission. The symposium will be advertised through the local media to reach a wide range of interested parties. Tobyhanna's Housing Manager maintains a current multi-listing of available homes for sale from depot personnel, real estate agents, local property owners, and community resort property managers. Prospective home buyers are provided up-to-date information for assistance in selecting their "dream home."

- Our Unoccupied Personnel Housing (UPH) units were upgraded by replacing old inefficient kitchen lighting with modern state-of-the-art, attractive fixtures which provide a brighter atmosphere. Bicycle racks were installed to provide a safe and secure area for our single soldiers' sporting equipment. Storage sheds were installed to afford single soldiers extra space to store personal items which cannot be accommodated in the current facilities. The sheds are similar to the existing ones installed throughout the family housing complex and arranged in accordance with our design guidance.
- The Transient Program was recently enhanced with the invaluable training provided to our Housing Manager who was selected to attend the Army Housing Training-With-Industry Course at the Hyatt Regency Hotel in Crystal City, Virginia. This course provided an extensive working knowledge of how commercial lodging establishments operate. Topics such as front office management, reservations, accounting, purchasing, housekeeping, laundry service, engineering, and hotel security were presented in a manner that could be adapted to government operations.
- As a member of the Soldier Transfer Assistance Team, the Housing Manager traveled to Lexington Blue Grass Army Depot to assist in the transition process of Lexington employees. Housing information regarding waiting lists and availability both on and off post were provided to all personnel in a centralized reception area that was exclusively set up for this purpose. Upon their arrival at Tobyhanna, employees were offered individualized one-on-one service in an effort to acquaint them with the installation, the Poconos, and the surrounding areas. Plans are now underway to re-establish the team to provide relocation services to Vint Hill Farms personnel.
- Tobyhanna's Housing Manager actively participates in the biannual Town Hall Meetings which are sponsored by Army Community Services. These meetings afford residents the opportunity to express their concerns and provide recommendations for improvement in the housing community. For instance, a request for increased security patrols in the family housing area to reduce speeding violations quite possibly prevented a tragedy from occurring.
- Surveys, which are provided in welcome packets, are continually solicited from guests who use our transient facilities. Evaluation of our services and facilities is continually accomplished as suggestions are reviewed and implemented. Customer feedback has been extremely positive as we continue to ensure complete satisfaction.
- In an effort to increase the effectiveness of our customer service, housing personnel attended our Total Army Quality-inspired courses, "Legendary Service" and "Leadership, Education and Development" (LEAD). These courses provided beneficial training on topics regarding customer service improvements, effective communication, and team building.
- Tobyhanna's Fire Prevention and Protection Department continually provides fire prevention training to our Family Housing occupants. Fire prevention inspections and smoke detectors are offered to housing residents. Emergency information, such as "Tot Finder" stickers, emergency telephone numbers, and fire prevention checklists, is provided to newly arrived families. These items are also distributed through the course of the year during fire prevention briefings, Town Hall Meetings, "self-help" classes, and housing preventive maintenance inspections.
- The Housing Program excels in the depot's environmental initiatives. Tobyhanna's Recycling Program was recently expanded with cardboard removal accomplished through curbside pick up. To further enhance Tobyhanna's already successful program, the Recycling Center was reorganized to improve accessibility for our residents. In addition, each household receives a hazardous waste inventory guide to assist in determining which common household products represent a hazard to the environment and provide guidance for proper disposal of unused products.

As part of Tobyhanna Army Depot's long-range Master Plan, the "Whole Neighborhood Revitalization" Project has been planned for FY99. The objective of this project is to upgrade our 40 family housing town houses to include complete kitchen and bathroom renovations, new roof installation, closet space additions, new electrical upgrades, and modern energy-efficient heating systems. Future renovations are also planned for the officers' quarters with the addition of a new kitchen and ventilated roof system.

MILITARY PERSONNEL SERVICES AND FACILITIES

Tobyhanna's Military Personnel Office (MPO) is unrelenting in its commitment to provide responsive services to our soldiers. The MPO supports the military contingent stationed at Tobyhanna Army Depot, Defense Distribution Depot Tobyhanna, Carlisle Barracks Veterinarian, U.S. Army Test Measurement and Diagnostics Equipment Activity, U.S. Army Medical Maintenance Activity, Full-Time Manning personnel assigned to the 305th Signal Company, activated Guard Units, and Reserve Component Training Divisions.

- Since Tobyhanna Army Depot is surrounded by a network of major interstates, National Guard and Reserve Component convoys traveling through Northeastern Pennsylvania rely on the hands-on involvement of installation personnel to support their mission. The Reserve Component Training Division teams with the Security Division to provide these troops quality logistical services such as lodging accommodations, meal arrangements, and vehicle refueling. A prime example of Tobyhanna's uncompromising commitment to soldiers was demonstrated by our support to the 50th Armored Division, a convoy of over 600 vehicles and 1,200 personnel, in a single day!
- Military award ceremonies are conducted in recognition of significant soldiers' accomplishments. The Commander, military family members, and coworkers participate in these ceremonies which are prominently celebrated in the Commander's Office, the newly renovated conference rooms, or the front of the stately entrance to the Administration Building. Military retirement ceremonies are most impressive and include appropriate military musical selections, color guard, and participation by the military and civilian community for proper recognition of the men and women who selflessly serve our nation.
- Intensive management of official files and active participation by the Commander, the depot's Sergeant Major, Military Personnel Office staff members, and the military education officer assures a 100 percent compliance with military promotion procedures. Tobyhanna's small military population affords the opportunity for personalized and detailed career counseling. This serves as an advantage to military personnel since they are provided many career enhancing opportunities. Tobyhanna's model training program offers personnel a very positive position to truly "be all that you can be."
- Each military member is provided a personal interview with the Personnel Services NCO to ensure the soldier receives credit for academic endeavors, awards, or high physical training scores received since the last review. This process serves as an avenue for promotion eligibility or as a method to review career goals and identify areas for improvement.
- Tobyhanna's Military Personnel Clerk works closely with each soldier's raters to ensure that Officer Evaluation Reports (OER) and Enlisted Evaluation Reports (EER) are processed accurately and timely. Tobyhanna's Commander strongly supports the evaluation process and maintains that soldiers deserve their evaluator's full attention and assistance in identification of strengths, career goals, and individual objectives as well as areas for improvement. Tobyhanna's accuracy rate for OER and EER submissions is 100%, which far exceeds the recommended 95% goal. This record for timely, accurate ratings is a result of management's full support and commitment to the evaluation process.
- The Sponsor Program continues to flourish. Incoming personnel are matched to an appropriately graded sponsor and provided a six-page informational packet listing detailed in-process instructions. The in-processing checklist has been fully automated to ensure timeliness and accuracy. The sponsor greets newly arrived members, accompanies them to lunch, and introduces the soldiers to their new supervisor. The sponsor is available throughout the check-in process as well as the next several days to acclimate individuals to their new surroundings.
- The Military Personnel Office represents a one-stop center for arrival and departure processing, controlling identification cards, issuing passports for military and civilian employees, and disseminating information to active military, retired military, Reserve Units, and National Guard members. The office is located

near the Post Exchange and Commissary which is conducive to many customers' needs. Ample parking is readily available and the building is handicapped accessible. The layout was specifically designed to accommodate the Military Personnel Office, ensuring privacy by structurally separating a relaxed waiting room consisting of comfortable furniture, a television, climate controlled environment, and a vast reading selection. Children's furniture, coloring paper, and crayons are furnished for the young clientele, compliments of the Military Personnel staff members.

- Tobyhanna Army Depot services a retired military community in excess of 20,000. Retirees and their dependents can make a single trip to renew their identification cards, shop at the Post Exchange and Commissary or conduct other business at the depot. Each Military Personnel staff member is cross-trained to update the Defense Enrollment Eligibility Reporting System (DEERS) and issue identification cards. The office is on-line with a DEERS site in Virginia to effect immediate update of records. Every effort is made to expedite processing and make any associated wait as comfortable as possible.
- A full-range of training and testing support is continually provided to the military members stationed at Tobyhanna. An Employee Development Specialist (EDS) works closely with each soldier and provides one-on-one counseling in all aspects of training to discuss viable educational opportunities. The EDS is also the Training Standards Officer who provides the Soldier's Development Tests for enlisted personnel and administers the Common Task Test. A library of college references and catalogs is maintained so service members can better plan their educational objectives.
- This summer, Tobyhanna hosted five West Point cadets participating in the U.S. Military Academy's Academic Individual Advanced Development Program. The program is designed to provide practical experience in the field the cadets have chosen in order to better prepare them for their first military assignment. The senior cadets received hands-on training in the Environmental Management and Production Engineering Divisions. During a recent visit by MG Dennis L. Benchoff, Commanding General Industrial Operations Command, the cadets were invited to join the general for an early morning run, coffee break, and an informal discussion of their career goals. This was mentorship at its best!
- Tobyhanna is home to the only High Tech Regional Training Site/Maintenance (HTRTS/M) in the Army Materiel Command and provides the largest enhancement annual training program to over 10,000 Army Reserve Component members. Courses are held in the modern four classroom facility, which contains two workbench areas for electronics equipment instruction and a 14-bay cargo area to facilitate hands-on large equipment training. Instruction is supplemented with skilled technicians providing training in the shops and warehouses. Five accredited sustainment training courses are currently provided for which soldiers receive credit toward their Military Occupational Specialty (MOS) qualifications. Sustainment and transition training in 84 separate MOSs are provided by a hands-on, individualized process, to afford soldiers an in-depth, diversified education. Specialized training requirements are coordinated with Company Commanders ensuring the course of instruction is responsive to the needs of the unit or individual. Each year, Tobyhanna conducts site visits to First, Second, and Fifth Armies, travels to individual units and battalions to provide information on training opportunities, and solicits feedback from area Army Reserve Commands and the National Guard Unit's Adjutant Generals of surrounding states to ensure training needs are addressed in a timely manner.
- A Retired Services Office (RSO) is staffed by 28 retiree volunteers, officer and enlisted, representing all branches of the Armed Forces. The RSO provides valuable information to both civilian and military retirees and acts as a liaison with the retired community through efforts which include publication of a semiannual newsletter and participation on a variety of boards and councils. An annual Retiree Day, hosted by the RSO, is attended by over 800 individuals. To ensure retirees' special needs are met, a representative from the RSO was solicited to participate in the U.S. Army Health Clinic's Medical Advisory Group. A member of the RSO has accepted a four-year appointment to the Army Retiree Council and to advise the Army Chief of Staff on important issues concerning the military retirees.

The Military Personnel Office is committed to providing excellence in facilities and personnel services. Short-term plans include renovating the women's rest rooms in the barracks. As part of Tobyhanna Army Depot's long-range master planning initiatives for the barracks, improvements include upgrading the electrical, heating, and plumbing systems; remodeling rest rooms; installing new windows and doors; painting interior walls; and acquiring new furniture.

TOBYHANNA

ARMY DEPOT**EXCELLENCE
IN ELECTRONICS**

THE ARMY CAREER AND ALUMNI PROGRAM (ACAP)

The Army Community Service (ACS) Office at Tobyhanna is responsible for ACAP services for the single soldier, married military and their spouses, and retirees in the surrounding area. Our goal is to provide professional assistance during a very emotional time in a service member's career. We provide accurate information on benefits and entitlements and job search assistance.

- When customers request assistance, either by appointment or walk-in, they are treated in a courteous and professional manner. Applying techniques acquired from attending the unique Tobyhanna Total Army Quality-inspired course, "Legendary Service," the Program Director creates a comfortable atmosphere for all clients.
- Tobyhanna's transition office is designed and maintained to provide our military community with a quiet, comfortable place to work. Clients are escorted to private workstations where a telephone, computer station, and office copier are available for their use. Staff members have taken the initiative in beautifying the offices with decorator plants and desk accessories, in addition to supplying magazines for the reception area. Two state-of-the-art computers, accessorized with laser and letter quality printers, are available to meet our clients' needs. Word Perfect and IBM Writing Assistant software packages are accessible for preparing resumes and letters of introduction. Tobyhanna's staff members provide personalized instructions in the use of the software programs, furnish the expertise required to perform self-directed job searches, and encourage clients to work at their own pace.
- Tobyhanna has acquired the latest, state-of-the-art job search databases for our personal computers. The America's Job Bank (AJB), with over 7,500 listings, is a user-friendly program which allows the client to search for both private sector and Federal jobs. The search is performed by the type of employment the client is seeking, along with the geographical location they choose. Transition Bulletin Board (TBB) is another form of job search accessed through a modem to a job bank where clients choose their desired profession and geographical location. Also listed on the TBB is information on upcoming seminars and workshops scheduled throughout the United States. The Defense Outplacement Referral System/Public and Community Service (DORS/PACS) is a highly used program at Tobyhanna. This "mini-resume" program allows the client to enter information, which is sent to a central job bank, and in turn matches the client with prospective employers. So the client can promptly correspond with other ACAP sites, Tobyhanna installed electronic mail capabilities in all personal computers.
- To provide the highest level of customer service, Tobyhanna has established a charge account at a local discount department store. This enables us to quickly replenish our supplies while responding to our customers' needs. Tobyhanna's ACS staff has initiated action to obtain a credit card, thereby increasing our buying power and merchandise selection.
- We market our transition programs through the official bi-monthly depot newspaper, "Tobyhanna Reporter." The reporter is delivered to all active military assigned to Tobyhanna and the Retirement Services Office. We regularly feature program changes and highlight significant plans. We frequently publish our office hours and points of contact in the "Tobyhanna Reporter" to keep our customers well informed. To keep our customers continually updated and aware of new services, we develop and distribute an individual bulletin.
- Follow-up phone surveys are conducted in an effort to improve customer service. The size of our installation is conducive to personal contacts and enables us to obtain immediate customer feedback. Recent surveys indicate that Tobyhanna's clients are especially interested in the Resume Writer and SF 171 software programs, and as a result, we have ordered these software programs to complement our existing computer programs. Interpersonal communications are essential to the successful implementation of customers' suggestions, and they have enabled us to develop a rapport with our customers that will not soon be forgotten.

- Tobyhanna's transition office has developed a close-knit relationship with the official ACAP site at Carlisle Barracks, located approximately 2 and 1/2 hours from our installation. We continually maintain integrated services with Carlisle and schedule Transitions Attendance Program (TAP) classes for transitioning service members, coordinating all class dates and availability with Carlisle and the service member.
- In addition to assisting the military and civilian population at Tobyhanna, we provide services to the surrounding community and over 10,000 Reserve Component soldiers who perform their two-week annual training at Tobyhanna. Through a teaming venture with Reserve Component Training personnel, we incorporated a comprehensive transition/job search program training seminar into the reserve unit's orientation briefing. This effort keeps the reservists keenly aware of all ACAP services and has proven to be very successful. To date, hundreds of single soldier reservists have taken advantage of our programs and many return to our office each year to update their information.
- The ACS works in close coordination with Tobyhanna Army Depot's Retired Services Office (RSO). The RSO is staffed by 28 retiree volunteers, officer and enlisted, representing all branches of the Armed Forces. It provides valuable information to both civilian and military retirees and acts as a liaison with the retired community through efforts which include publication of a semiannual newsletter and participation on a variety of boards and councils, such as the Army Retiree Council. The RSO sends many referrals to ACS and provides information on retirement benefits, entitlements, and job search services.

Tobyhanna Army Depot's Transition Assistance Program (TAP) continues to grow with numerous changes taking place and new programs constantly being initiated to enhance job search strategies. We keep our information current and accurate to provide the best possible assistance to our clients during the most turbulent of times. We are expanding our software programs to include the Resume Writing Program and the SF 171 Program. We will continue to provide workshops and all the tools necessary for individuals to attain gainful employment in today's highly competitive job market.



CIVILIAN PERSONNEL SERVICES AND FACILITIES

Civilian personnel services are provided to the Tobyhanna Army Depot community in a manner that contributes to mission accomplishment by recruiting quality talent, developing employees to their fullest, and retaining a first-class work force capable of worldwide support to our customers.

- The Personnel Directorate provides a full range of diversified services to employees of the depot proper, six on-post tenants, the Seneca Army Depot Activity, six off-post tenants (five of whom are in New York State), employees of the Consolidated Maintenance Support Facility in Panama, and employees stationed in six remote sites worldwide. Each of our employees has a personal commitment to provide the highest level of customer service to all individuals, regardless of their geographic location.
- Tobyhanna Army Depot's human resource plan is based on respect for the worker, integrity in day-to-day business, trust between labor and management, and open communications. During Tobyhanna's requested appearance to address the National Partnership Council, Vice President Gore referred to Tobyhanna Army Depot's labor management philosophy as a model for reinventing Government.
- Recognizing the importance of remaining competitive, the depot established a Workload Review Process Action Team (PAT) to analyze projected workload and determine depot staffing requirements. As a result, 167 excess positions were identified. Personnel members subsequently requested and received approval for Voluntary Separation Incentive Pay and Voluntary Early Retirement Authority. This successful effort prevented a reduction in force and the involuntary separation of depot employees. Through advance planning with depot organizations, a one-stop clearance area was established to efficiently process employees. Because of the timing of the announcement and the departure deadline imposed on Civil Service Retirement System employees and to ensure prompt payment of initial retirement checks, it was imperative to accomplish the out processing of the majority of the employees in a one day time frame.
- Tobyhanna Army Depot's Workers' Compensation Program has been heralded as a bench mark program within the Department of Defense. The Director of Personnel provided over 50 presentations to various agencies throughout the country to assist in developing effective workers' compensation programs. To date, our program has realized savings in excess of ten million dollars.
- The newly renovated entrance way to the Administration Building provides a powerful first impression and was designed to fully assist the handicapped. The recently renovated Personnel Directorate blends nicely with the adjacent offices and is set up in accordance with the depot's internal design guidance. This central location is highly conducive to timely customer service, especially through the use of a newly installed client-server automation system with each person having access to the system through state-of-the-art 486 personal computers. Through "self-help" initiatives, employees have tastefully decorated their individual areas with art work, handcrafted items, and flower arrangements. To ensure complete customer satisfaction, a service evaluation form was developed and placed, along with suggestion boxes, near each entrance to the office area. These boxes are checked on a weekly basis and comments are personally reviewed by the Director of Personnel and his staff for evaluation and implementation of customers' suggestions.
- Tobyhanna Army Depot's Position Management and Classification staff is viewed as having one of the strongest programs in the Department of the Army. One of our classifiers participated in the DOD work group, COREDOC, to develop an automated core document for Electronics Mechanic, WG-2604 series. This process improvement project was a significant accomplishment for integrating position classification, staffing, performance expectations, and training into a database for DOD-wide application. Additionally, a member of the Position Management and Classification staff participated in the first AMC Army Acquisition Corps PAT, via telephone. The PAT telephonically meets biweekly to address issues regarding training requirements and Automated Civilian Personnel System (ACPERS) data. This unique approach to problem solving is both economical and effective.

- Tobyhanna Army Depot's extensive employee recognition program is anchored by its worldwide acclaimed Length of Service Ceremony and has been adopted by agencies universally. Once a month, family members and co-workers are invited to attend the ceremony which commemorates employees with 30, 35, or 40 years of service. To date, the Incentive Awards Office processed 785 cash performance awards, 115 Quality Step Increases, 45 Special Acts, and 698 On-the-Spot Awards. In addition, 32 employees received distinguished honorary awards from higher headquarters. Time off awards and group incentives similar to Productivity Gain Sharing are being evaluated for inclusion in the FY95 Awards Program.
- Tobyhanna takes pride in developing personnel to their fullest potential and actively encourage employees to apply for Long-Term Training. These training opportunities include the Leadership Executive Development Course, Army Management Staff College, Training-With-Industry Program, Competitive University Program, and Women's Executive Leadership Program. To date, 11 personnel participated in these programs, which provided a valuable learning experience for future advancement and fostered equal employment opportunities (EEO).
- The Training and Development Division operates a nine room professional training complex with three electronic classrooms, three computer classrooms, a Satellite Education Network (SEN) classroom, a Learning Resource Center, a large lecture hall, and a soldering room. The entire center was enhanced through a series of facility refinements resulting in improved acoustics, well-lit study areas, and more efficient space utilization. The Technical Training Center is dedicated to the continuing education of the Tobyhanna community. Over 5,000 employees received approximately 250,000 hours of training. This was a significant increase from the prior year where 4,350 individuals received 98,000 hours of training. Courses included Statistical Process Control, Special Employee Programs, Electronic Equipment Training, Total Army Performance Evaluation System, Hazardous Waste and Hazardous Material Training, and computer software classes. The center is used for single soldier Reserve and National Guard training and an after-duty hours college program, where employees can attend classes for self-improvement or attain a degree.
- Specialized courses are developed to encourage a participative work environment. As part of our Total Army Quality (TAQ) depot plan, a TAQ Awareness Course was implemented to provide employees with a four-hour introductory overview that describes the philosophies and ongoing initiatives at Tobyhanna. Thirty-four employees were certified as adjunct instructors and trained over 1,000 depot employees. Tobyhanna continues to provide the distinctive, self-developed customer service course entitled "Legendary Service," which addresses techniques on exceeding internal and external customers' expectations. Specially designed course certificates and eagle pins were awarded to 600 graduates. Ideas are solicited from employees identifying ways to improve customer service and are posted in employee bulletins for organizations to review and implement. The "Leadership, Education and Development" (LEAD) Course was reinstituted into our Supervisory Excellence Program. The LEAD Course incorporates training of the nine Army leadership competencies and emphasizes group interaction, team building, conflict resolution, and effective communications. New and seasoned supervisors are combined to allow sharing of knowledge and experiences.
- Tobyhanna has a proactive EEO Program. The full-time three member staff is supplemented with a Black Employment Program Manager, eight Collateral Duty EEO Counselors and an EEO Committee. With the installation of the client-server network and 486 personal computers, our personnel utilize the ACPERS, Complaints and Tracking, and EEO Monitoring and Analysis Systems which integrates databases throughout HQDA. Community outreach programs are actively pursued and encouraged by EEO. The Tobyhanna-Keystone Job Corps' Center Connection has flourished since its inception in 1971. To date, over 2,000 students were trained in a variety of occupations to enhance their skills necessary to enter the job market. The EEO Office sponsors "Women in Business Seminars" and "Cultural Awareness" training, in conjunction with local communities. American Heritage Week is conducted yearly to celebrate the contributions of all ethnic and minority groups. The EEO staff sponsors "self-help" seminars addressing topics on career management and personal health issues for the work force.

The goal of the Directorate of Personnel is to continue providing exemplary services, and contributing to mission accomplishment through employee and organizational development. As part of the Installation Management Action Plan, we are implementing a Training Action Plan to help managers identify training requirements congruent with planned workload. We are publishing a Customer Service Guide, an Employees' Handbook, and a Supervisors' Handbook to help managers and employees utilize our services more effectively.



MWR AND FAMILY SUPPORT SERVICES AND FACILITIES

The goal of the Security and Community Services Directorate is to provide customer-oriented services, morale-enhancing programs, diverse recreational activities, and first-class facilities to augment the quality of life and environment at Tobyhanna Army Depot.

- With the increase of active military assigned at our installation, Tobyhanna established a "Newcomers Orientation." New arrivals are briefed quarterly on significant areas of the depot including Army Community Service (ACS), Housing, MWR, Chapel and counselling services. A "Welcome Committee" was organized to greet married military members, their families, and single soldiers who arrive on post. With the assistance of volunteers from our housing area, a hot meal and a welcome basket are offered to ease the pain of transition to a new community while offering a warm, neighborly greeting. Tobyhanna has improved our Lending Closet considerably with the addition of five new kitchen loaner kits, ten cots, new high chairs, strollers, appliance packs, futons, portable cribs, and car seats. To meet the needs of Tobyhanna's increasing single soldier population, we requested an assistance visit from HQ AMC to develop a Better Opportunities for Single Soldiers Program.
- A Soldier Transfer Assistance Team was established to ease the burdens associated with the transfer of the Lexington personnel. This team consisted of members from ACS, Housing, civilian, and military personnel. Large amounts of information regarding housing, schools, communities, and on-post accommodations were provided to military and civilian personnel in a centralized "reception" area set up at Lexington Blue Grass Army Depot. Tobyhanna is reestablishing the team to provide relocation services to Vint Hill Farms' personnel due to the proposed mission transfer.
- A volunteer program was recently initiated to assist the ACS Office and Health Clinic with administrative duties. Donations were received from both the Non-Commissioned Officers' (NCO) Wives and Officers' and Civilian Women's Clubs to reimburse the volunteers' child care expenses. Plans are finalized to expand these services in additional MWR areas.
- To enhance the quality of life for the military community, ACS sponsors biannual Town Hall Meetings. Prior to each meeting, we survey the military members for topics to be addressed. Panel members are available to address questions and each meeting features a guest speaker. One of the improvements recently implemented as a result of these meetings is a government limousine service for military personnel and their families who need to attend specialized medical appointments at larger health clinics.
- The Family Child Care's Community Preschool Program, established last summer, continues to flourish. The preschool operates three days a week, 2 1/2 hours a day, and provides a modern, fully equipped, handicap accessible facility for our children. A Grandparent Program was organized with The Devereux Foundation, a neighboring adult day care facility. Preschoolers and their visiting "grandparents" participate in activities such as arts and crafts, dancing to the Hokey Pokey, or a special picnic. Child development educational seminars are continually offered on topics such as The McGruff Crime Fighting Dog, Hug-A-Bear Seat Belt Program, and Child Safe Program, which focuses on teaching the children to say "NO" to a stranger. Family Child Care providers' education expanded to include contracting with local universities, providing workshops on nutrition, child development, and childhood disorders. Participants earn continuing education credits free of charge while receiving valuable training.
- Approximately 100 youths, ages 6 to 19, participate annually in the Youth Services Program. The Recreation Room of the newly renovated Youth Services Building is equipped with a state-of-the-art personal computer, 46" television with VCR, pool table, football table, shuffle hockey table, stereo system, assorted games, and craft supplies. A newsletter is published and distributed monthly indicating ongoing events such as monthly birthday celebrations, holiday parties, pot luck dinners, and plays. Community relations events, such as trips to nursing homes and contributions to a local homeless shelter, are announced. The Youth Services Summer Day Camp includes field trips to museums and amusement

parks, swimming, tennis, soccer, dance contests, movie marathons, arts and crafts, and talent shows. A Junior Counselor Program, for children age 13 and up, was initiated.

- The Civilian Welfare Fund (CWF) offers many specially planned events to the depot community. The CWF sponsors an annual summer trip to a local amusement park so employees and their families can spend quality time together while enjoying the amenities. Two summer golf tournaments and organized softball leagues are sponsored by the CWF. Cards and games are provided, free of charge, to employees for relaxation during lunch periods. The CWF sponsors "Operation Santa Claus," which hosts two holiday parties for 300 handicapped children. The guests are treated to musical entertainment, enjoy a visit with Santa Claus, partake in lunch, and receive a stocking full of gifts.
- The Community Recreation Division manages an outdoor recreation complex consisting of a swimming pool, multi-purpose courts, playgrounds, and a four-acre lake; a gymnasium which includes racquetball courts; Auto, Ceramic, and Wood Craft Shops; the Post Library; the Youth Services Program; an extensive equipment rental program; a coin-operated car wash; and an Information Tours and Travel Office.
- Renovation of the Mack Fieldhouse was recently completed to include a new 28' X 90' state-of-the-art fitness room expansion, renovated locker and shower facilities, a new gym floor with olympic volleyball and basketball standards, and refinished racquetball courts. At the request of our single soldiers, a new treadmill was added to complement our existing fitness equipment consisting of lifecycles, liferowers, stairmasters, Keiser Cam III pneumatic equipment, and olympic free weight training apparatus.
- As part of a Community Outreach Program, Tobyhanna's Community Recreation personnel hosted a Boy Scout Camporee. Over 300 boy scouts camped overnight in "tent city" and participated in a full weekend of activities including tree and nature identification, outdoor cooking, and log-pulling contests.
- The Post Library is situated in a serene setting that offers patrons an atmosphere of privacy and quietude. The library operates Monday through Friday, with the added convenience of evening hours two times per week. The abundant collection of over 12,000 volumes is enhanced continuously through a subscription to a book leasing service which supplies customers with current titles and best sellers. The library accommodates the depot community by providing a weekly Mobile Book Service that is located adjacent to the main cafeteria and an Interlibrary Loan Program that enables customers to receive materials from local area libraries that are not available within the Post Library. The Post Librarian is always willing to "go the extra mile" by personally hand-carrying the item to the customer in order to expedite requests.
- The MWR Community Services consist of 17 individual activities which are managed by 89 employees. All personnel support the Total Army Quality (TAQ) initiative by attending TAQ-inspired courses, "Legendary Service" and "Leadership, Education and Development." Tobyhanna is currently accomplishing a triennial needs assessment, an in-depth questionnaire designed to solicit suggestions for new or improved programs to assure continued quality service. As a result of a recent survey, a coin-operated car wash was installed adjacent to the Auto Craft Shop. This has proven to be a huge success with the car wash being utilized over 1700 times since installation in November 1993. The Installation Morale, Welfare, and Recreation Fund (IMWRF) has a total of \$2.4 million dollars in assets. The fund has an operating capital in excess of \$800,000 for FY94. Our IMWRF has consistently exceeded HQ AMC's goal of "break even before depreciation." Execution rate of our Capital Purchases and Minor Construction budget is 100%, exceeding the AMC goal of 70%.
- The Community Club is the primary focus of social activity at the depot. The club currently has over 350 members and generates \$250,000 in annual sales. Through a "self-help" effort, the Officers' and Civilian Women's Club enhanced the club's landscaping efforts with the planting of flowers and shrubs. The newly renovated club has aesthetically pleasing surroundings and the catering operation has increased substantially since the modernization. In addition to weddings, showers, and retirement parties, the club has hosted conferences and luncheons for prominent business and political dignitaries. We were selected to host the Pennsylvania Governor's Northeast Technology Conference.

Tobyhanna's programs and services continue to expand to meet our customers' needs. We are developing a Travel Park and constructing recreational cottages around our four-acre lake. Over 30 campsites will be installed with modern shower and restroom facilities, in addition to guest cottages to allow families to enjoy many of the Pocono attractions at an affordable lodging cost.



ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

RESOURCE MANAGEMENT/FINANCIAL SERVICES AND FACILITIES

The Directorate of Resource Management is instrumental in budget formulation/analysis, Total Army Quality (TAQ) initiatives, effective financial services, base realignment efforts, and manpower analysis. Resource Management personnel are dedicated in providing exemplary service to both military and civilian customers.

- With a high commitment to customer service, Defense Finance and Accounting Service (DFAS) streamlined operations by implementing a one-stop customer service desk. This effort consolidated functions such as travel vouchers, military pay, payroll inquiries, travel requests, and commercial accounts' inquiries. Tobyhanna Army Depot is the only installation in Northeastern Pennsylvania which provides a full range of payroll services for members of the Armed Forces who are in the area on leave or passing through during permanent change of station. These services are also provided to 10,000 single soldier Reserve and National Guard members who train here for active duty.
- This past year, 167 depot employees opted for Voluntary Early Retirement Authority/Voluntary Separation Incentive Pay. This initiative involved extensive coordination between DFAS and numerous depot organizations resulting in a 97% submission rate. Close organizational working relations resulted in civilian personnel actions being processed 99.9% prior to the cutoff date. Payroll checks were processed and distributed on time every pay period. Employees receive their pay through the Electronic Fund Transfer to afford them the convenience of direct deposit and create a more efficient means of payroll processing. Military participation in SURE-PAY continues at 100%. Thrift Savings Plan deposits are processed to the National Finance Center for 100% of the contributions enabling civilian employees to earn maximum interest.
- As part of our ongoing commitment to continuous improvement, a Travel Order Processing (TOP) Process Action Team (PAT) was established to streamline the processing of travel orders without sacrificing the quality of service. Travel advances are provided on short notice, or same day, for travelers who respond to emergency requests for worldwide assistance. We take pride in our expedient travel voucher turnaround time, which is one day under the DA goal! This rapid turnaround leads to improved customer service by ensuring American Express bills are paid in a timely manner.
- To assist customers in voucher preparation, DFAS provides training classes to employees and supervisors on the Fair Labor Standards Act, entitlements, and responsibilities while traveling. As a service to Tobyhanna's travelers, DFAS publishes a regular column entitled "Travel Guide" in our biweekly newspaper, "The Tobyhanna Reporter." These articles provide valuable travel information and helpful hints for accurately completing travel vouchers.
- Avoiding interest penalty payments to vendors under the Prompt Payment Act have always been a top priority at Tobyhanna. Our current rate is at .0002%. This year, we have expended \$40,715,000 and paid \$27.39 in interest, well under the \$100 per million goal!
- The Army Ideas for Excellence Program (AIEP) continues to flourish. Suggestions cover issues such as energy conservation and ideas to enhance the depot. In conjunction with Earth Day celebrations, the AIEP held a special campaign soliciting ideas from the work force for environmental/energy saving ideas. This campaign heightened the employees' awareness of Earth Day and also improved the environment through implementation of these ideas. To date, approved suggestions resulted in tangible savings of \$483,514.
- Tobyhanna Army Depot, committed to the success of the Value Engineering (VE) Program, dedicates a full-time program manager in Resource Management, two full-time VE officers in Maintenance, and many part-time officers. Employees are actively encouraged to share ideas for improving operations, while simultaneously reducing costs. This year, VE accomplished \$3,868,029 in savings, achieving 178% of the HQ DESCOM goal. In recognition of these accomplishments, the program manager received the AMC VE Performance Award.

- Tobyhanna Army Depot is the only installation within AMC that has taken the initiative to use the Manning Document in the Automated Manpower Management Information System for a "living" TDA. As a result, we were asked to provide demonstrations to HQ AMC and Armament, Munitions and Chemical Command. Through our creative efforts and technical knowledge of the system's capability, Tobyhanna has recommended modifications to provide further query capability to keep pace with the ever-changing requirements of functional managers.
- The Directorate of Resource Management serves as the focal point for all Base Closure and Realignment Commission (BRAC) issues at Tobyhanna Army Depot. The appointment of a centralized BRAC point of contact assures continuity in Tobyhanna's quest to become "The Communications-Electronics Logistics Center of Choice into the 21st Century."
- Tobyhanna's employees have significantly contributed to a variety of projects in the depot community. Analysts have conducted the TAQ Awareness training; Leadership, Education and Development (LEAD) courses; and served on the BRAC self-managing bid work teams which resulted in Tobyhanna winning four of the five competition packages. A Budget Analyst was awarded the HQ DESCOM FY93 Cost Analyst of the Year Award for her outstanding efforts in developing an Interservice Support Agreement cost estimating methodology. In addition, a Management Assistant received the FY93 HQDA Installation Resource Management Award for notable achievements in developing procedures for the Maintenance Directorate's reorganization. Two analysts were selected to participate in the Department of the Army's Prototype Resource Management Mentorship Program.
- A prime example of employee empowerment was that which occurred in a recent modernization effort. A renovation team was established to assess employee's needs and develop floor plans, furniture configurations, and color schemes. As a result, the directorate work area was painted and carpeted, and received a new ceiling, energy-efficient windows and matching vertical blinds. The old desks and filing cabinets were replaced with modern modular furniture and color-coordinated lateral cabinets. Employees exhibited the true meaning of "self-help" by purchasing their own desk accessories, decorative planters, and artwork. This effort has maximized available space, while creating a comfortable, well-organized work place that fosters teamwork.
- Tobyhanna Army Depot provides a full line of credit union and banking services to its military and civilian employees and their families. The Federal Credit Union, staffed with a 16 member team, is a full-service, family-oriented institution dedicated to serving its members. With customer service as its number one priority, the credit union instituted "TOBY 24," a toll free telephone number which puts a teller in the customer's home, office, car, or anywhere there is a touch tone telephone. The credit union provides mortgage, auto, personal, and home equity loans; checking/savings accounts; money market accounts; low interest Visa cards; and free notary service to its clients. The addition of the credit union's first off-post branch office will provide greater access and service for members. The PNC Bank recently completed a full renovation to include the addition of private offices furnished with ergonomically designed work stations, new carpeting, wall treatments, and state-of-the-art equipment. Services such as 24-hour telephone banking, no-fee traveler checks for TDY travelers, and a conveniently located, on-post MAC machine portray excellence in the banking industry.
- To promote training and development of professional careers, a chapter of the American Society of Military Comptrollers was recently chartered. This chapter was jointly formed by Tobyhanna and Army Audit Agency Field Office employees. Business luncheons are conducted regularly to promote informative, professional programs. Our honored guests included LTG James F. McCall (ret), Executive Director, ASMC; Mr. Francis Reardon, Auditor General, U.S. Army; and Mr. Ernie Gregory, Deputy Assistant Secretary of the Army. Since October 1993, the chapter has grown from 18 to 46 members.
- The Internal Review and Audit Compliance Office was relocated from a limited, cramped area to a spacious office located adjacent to the lobby of our Administration Building. This new location, ideal for serving the needs of internal and external customers, consists of reception, conference, and expansive work areas. In addition, our high-integrity auditing practices have received commendations from many external audit agencies, including DOD Inspector General. DCAA audits on competition proposals touted Tobyhanna for its strict adherence to the DOD Cost Comparability Handbook.

In keeping with the philosophies of the Installation Management Action Plan, we are committed to maximize the effectiveness and efficiency of our resources. To achieve this goal, we are expanding the Resource Planner database to provide estimates for teaming with industry ventures.

CHAPLAIN SERVICES AND FACILITIES

In FY93, Tobyhanna Army Depot lost its Chaplain slot due to downsizing initiatives. Realizing the importance of worship services to the community, the program has been revitalized due to the volunteer endeavors of our military community.

- The depot community actively sought out Chaplain support from the local vicinity and area reserve units. Through a "self-help" effort, a local resident, who is currently attending the Seminary and enrolled in the Chaplain Candidate Program, volunteered to perform the Chaplain duties. In turn, he is receiving credit toward his retirement as an Individual Ready Reservist (IRR).
- Religious leadership is provided to 60 military members and their dependents, 4,000 civilians, and over 10,000 Reserve Component and National Guard members who perform their two week annual training at Tobyhanna. In the absence of the chaplain, either a retired Active Duty Chaplain from the local area or another Reserve Chaplain leads the worship services.
- The Chapel has recently been renovated and is always available for services, regardless of religious affiliation. It is centrally located near the barracks, bachelor officers' quarters, bachelor enlisted quarters, and guest housing. Ample parking is available and the Chapel is handicapped accessible. In direct response to the needs of the community, interpreters for the hearing impaired are provided upon request. Several weddings have been performed over the past year, including one in which two members of a Reserve Unit on annual training exchanged vows.
- With the assistance of a legion of volunteers, nondenominational Sunday services and children's church are provided. Ecumenical ministers distribute ashes on Ash Wednesday at three convenient sites within the depot complex. Flyers announcing upcoming services, newspaper articles in the Tobyhanna Reporter, and public address announcements relay information regarding the availability of religious services to both the military and civilians.
- Using volunteers, we ensure religious accommodations are continually provided. This includes soliciting an organist from the local community, preparing and distributing weekly programs, performing administrative announcements at the various services, maintaining the facility, scheduling the use of the Chapel, and guaranteeing an alternate Chaplain. The community was surveyed to determine what programs would best serve the population. Plans are finalized to reinstate the acolyte training program and the choir.
- Depot volunteers conduct Bible Study for the Reserve training members. These study groups are held in the Chapel on weeknights during the annual training. Residential Bible Study has been established for the military community. In a "self-help" initiative, a lunch time Bible Study group meets on a weekly basis to provide religious respite for depot personnel.
- During the highly successful Armed Forces Week Open House, the Chapel hosted a booth which was stocked with religious pamphlets, such as "The Daily Bread," and details regarding upcoming religious services. Personnel were on hand to discuss the services available at the Chapel and refer individuals for further assistance.
- In order to cope with the stressors of everyday life, Tobyhanna provides an exceptional comprehensive Employee Assistance Program for military and retired military, civilian and tenant employees and their family members. This office is tucked away in a secluded area of the administration building offering a convenient location that is conducive to privacy. The Employee Assistance Program Manager, who has been with the program for over 20 years, has helped employees and their families deal with a host of situations to include death, drug and alcohol addiction, marital difficulties, parenting, self-esteem, AIDS, suicide, terminal illness, financial difficulties, or any other situational crisis that may occur in one's lifetime. All sessions are kept in strict confidentiality. Appointments are available before, during, and

after duty hours. If, for some reason, the client wishes to seek further assistance, the Program Manager has a professional network of agencies as a referral service.

- Clients can fill their interpersonal tool box with skills to enable them to cope with problems by utilizing the Employee Assistance Office tape library, which offers a plethora of topics from which to choose. An extensive literature library is readily available, as well as numerous racks of informational booklets, which are stationed throughout the depot. These initiatives enable clients to reflect in the privacy of their own homes.
- In addition to counseling sessions, Tobyhanna's Employee Assistance Program Manager provides numerous services to the depot community. During these turbulent times of downsizing and realignment, the potential for violence in the workplace is at an all time high, therefore, a seminar for supervisory personnel was designed to address this issue.
- Tobyhanna's Employee Assistance Program Manager provides briefings to the single soldier Reserve Components informing them that counseling services are available during their tour at Tobyhanna, if needed. The Program Manager is responsible for family advocacy case management (Child and Spouse Abuse Program for the military and their families), and conducts drug testing for both military and civilians.
- Another sensitive issue that is handled by the Program Manager is his role in death notification. This solemn task is occasionally warranted, and the Program Manager has been called to perform this service at a moment's notice, be it daytime, nighttime, or on weekends. Recently, a serious auto accident on the interstate involved reservists requiring the Program Manager to proceed to a local hospital on his day off to provide counseling for the victims. Unfortunately, this accident involved the death of one of their comrades, as well as other critical injuries. The Program Manager unselfishly ministered to the emotional and spiritual needs of the victims.
- During Armed Forces Week, a campaign against substance abuse was initiated through the "Hugs Not Drugs" program. Bumper stickers, sports cups, frisbees, sunglasses, and airplanes were distributed to approximately 15,000 school students and adults. This program not only encourages awareness, but lets the community know that Tobyhanna stands behind the motto "Just Say No to Drugs."
- As a teaming effort with the community, the Employee Assistance Program Manager provides critical incident stress debriefings to firefighters, police officers, and EMTs in surrounding counties. This service is administered following critical injuries and loss of life as the result of drownings, fires, and accidents. On his own initiative, the Program Manager distributes informational pamphlets to the State Police and local police agencies regarding such topics as procedures for death notifications.

During the past year, Tobyhanna has come to appreciate the value and community impact of providing religious accommodations to the depot work force, military community, and those passing through on reserve training missions. We actively pursued the requisition of an authorization for a full-time Chaplain and are awaiting approval from HQ AMC. In addition, the recent request for depot volunteers to assist in the humanitarian efforts in Rwanda has prompted the Employee Assistance Program Manager to develop a counseling program for personnel who are about to be deployed to a foreign country. This service will enable him to ascertain the psychological strengths and weaknesses of volunteers prior to their exposure to highly stressful situations.



ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

LOGISTICS' SERVICES AND FACILITIES

Logistics' services and facilities at Tobyhanna depict an aura of pride and professionalism that focuses on extraordinary customer service. Personnel in the Defense Commissary Agency, Security and Community Services, Public Works, Maintenance, and Personnel Directorates are committed to setting high standards of excellence for soldiers and civilians alike.

- The Commissary is justifiably proud of its customer-oriented facilities which include a spacious parking lot with handicap accessible parking spaces, a newly tiled floor, and an electronic bulletin board to inform shoppers of "Daily Specials." The additions of a misting system and an ice machine have improved the quality of fresh produce. A Customer Service Support Team was formed to accomplish the Commissary's goal, "Quality First, People Always." Team members are trained to provide customer assistance and are easily recognizable by their colorful attire and distinctive yellow badges. Commissary managers, trained in Total Army Quality (TAQ) courses, have improved customer service by ensuring long checkout lines are eliminated. Single queuing checkout was implemented so customers may advance to the next available cashier. Handicapped patrons are accommodated with wider lanes and special checkout procedures.
- The Commissary serves the Tobyhanna military community, 10,000 single soldier reservists on annual training, and approximately 20,000 retired military and family members. Through a "self-help" teaming effort, the U.S. Army Health Clinic volunteered its services to conduct cholesterol and blood pressure screenings to Commissary patrons. Our single soldiers' mealtime needs are accommodated by the Commissary's initiative to provide over 150 varieties of individual portion items. With customer service as the primary goal, plans were made to erect an awning over the entrance to protect patrons from inclement weather, remove metal grates in the floor and replace with new tile, and acquire fully automatic meat wrapping machines.
- In an effort to further improve Tobyhanna Army Depot's services to the Reserve Component personnel, an alternative method of providing nutritionally-balanced meals was implemented. Through a teaming effort with Reserve Component Division, Community Club, and Post Restaurant personnel, meal tickets are provided for breakfast, lunch and dinner. Operating hours in the club and Post Restaurant have been adjusted to accommodate the soldiers' needs.
- The newly renovated Community Club, conveniently located within the Military Community Services area, is the primary focus of social activity at Tobyhanna Army Depot. The club currently has 350 members and generates \$250,000 in annual sales. Through a "self-help" initiative, the Officer's and Civilian Women's Club enhanced the landscaping efforts with the planting of flowers and shrubs. The catering operation is actively marketed and, as a result, has significantly increased. Tobyhanna's newest program, "The Honeymoon Package," provides patrons with complete wedding receptions and lodging accommodations in our newly constructed guest houses located at our four-acre lake retreat.
- The Post Restaurant currently operates three cafeterias and a large vending operation. A variety of services is provided to customers, which include daily specials, 27 varieties of salads, gourmet sandwiches, fresh baked products made daily from our in-house bakery, and take out service on menu items. A new phone order delivery service was implemented for employees who work in the outlying areas of the installation. The Post Restaurant continually conducts health fairs to emphasize the importance of eating well and offers complimentary food samples to customers. Post Restaurant employees receive customer service training to maintain patronage satisfaction. An extensive renovation project was recently completed to include redesigning serving lines to minimize waiting time, improving overhead lighting, installing a ventilated air system, and updating serving equipment. Terracotta tile flooring, color-coordinated carpeting, and cafe-style tables, chairs and decorator planters were added to promote an aesthetically pleasing environment. An entire remodeling of the adjoining rest rooms was completed.

- The Depot Equipment Division implemented an automated system to account for maintenance repair parts which eliminated over 100,000 excess parts. Application assures timely and responsive supply support to the mobile equipment mechanics, improves visibility of repair part cost per vehicle, and reduces the time required to complete work orders. This accomplishment contributed to Tobyhanna winning the FY93 AMC Maintenance Excellence Award for Heavy Density.
- The Administration Support and Travel Division is committed to providing extraordinary service in the accomplishment of movement of personal property. Our professionals assist multi-service forces and DOD civilians in making Permanent Change of Station, separation, and retirement moves. The office, staffed by two counselors, serves a nine county area in Pennsylvania and New Jersey. With a workload of approximately 1,100 shipments per year, the staff makes serving the customer a priority. This is evidenced by a recent situation where a soldier was departing and needed his baggage. The agent could not deliver the client's items due to adverse road conditions. Our Packing Specialist drove to New Jersey, obtained the baggage, and personally delivered it to ensure the customer's needs were satisfied.
- Tobyhanna Army Depot offers a customer-oriented transportation program to depot and tenant employees, military personnel and their dependents, visitors, Army Reserve and National Guard units, and members of the community as well. A shuttle bus service was established to accommodate the employees who are located in remote buildings, thereby limiting employees' exposure to adverse weather conditions. Bus transportation and driver test training are provided to geographical single soldier reservists performing their 2-week annual training. Tobyhanna continues to respond to the needs of local communities experiencing emergencies by providing water tankers and lighting generators.
- Innovative methods of doing business have been incorporated into our customer-service philosophy. A recent experiment was performed installing flat-proof tires (new tires packed with foam) on forklifts utilized on rough terrain. This resourceful method drastically reduced the number of flat tire repairs, thereby decreasing downtime and increasing savings. Another cost-saving initiative was modifying a snowplow by adding a dump box, allowing year round use. This creative action was accomplished at a minimal, one-time cost, and eliminated the need to obtain a costly lease for a similar piece of equipment.
- The Panama Consolidation Maintenance Support Facility is now under the command of Tobyhanna Army Depot. Tobyhanna provides leadership and support to the staff and is continually implementing new initiatives to enhance this support. This year, an aggressive employee training program for technical/logistical proficiency was instituted, as well as a cross-training program for technicians. The end result of this training is, of course, customer satisfaction. Tobyhanna has enhanced responsiveness to customers by establishing Blanket Purchasing Agreements for flexibility in ordering nonstandard parts.
- To foster positive customer service relationships and ensure satisfaction, Tobyhanna Army Depot initiated a process to hand-off major electronic systems. Teams, familiar with major systems, travel to CONUS and OCONUS Armed Forces units demonstrating the proper use of equipment and identifying improvements to equipment and procedures. The teams provide hands-on training to soldiers to greatly improve force readiness and virtually eliminate customer call backs.
- Certification of processes, products, and work centers is a continuing TAQ initiative to increase Tobyhanna's efficiency and productivity. There are currently 23 certification programs in operation and seven efforts in process. A review of these programs revealed approximately 300 employees are empowered to assume responsibility for their products. Tobyhanna's goal is to exceed customers' expectations by continuously improving products during every phase of our mission.
- Tobyhanna Army Depot conducts a vigorous Recycling Program. This successful program reduced the amount of municipal waste sent to landfills by conserving the use of 52,230 cubic yards of landfill space, and achieved a recycling rate of 72 percent. Income generated from the sale of recyclable material amounted to \$150,000. Revenues from this fund were used toward projects such as remodeling the guest houses, sponsoring Employee Appreciation Day picnics, and instituting a safety awards program. In recognition of notable achievements, Tobyhanna received the Pocono Northeast Community Award and the Partners in Protecting the Environment Award.

To continue providing exemplary customer service, we are expanding automation efforts, developing a customer service survey to obtain feedback, and regularly evaluating current processes to augment capabilities.



ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

MEDICAL/DENTAL SERVICES AND FACILITIES

The U.S. Army Health Clinic at Tobyhanna has channeled its energies toward providing health care services that epitomize its motto, "Our Quality is our Reputation." We are committed to provide a high degree of proficiency at all levels of prevention and to function cooperatively as a team to plan, implement, and evaluate a comprehensive health program that meets the special needs of our active military and their families, single soldiers, civilian employees, retirees and their dependents, and Reserve Component units.

- To maintain a high level of customer service, we developed an innovative appointment system for occupational health physicals. Two weeks prior to scheduling physicals, nursing staff members, a physician, and an industrial hygienist visit each work site to familiarize themselves with the area and identify any potential hazards or risks that may be encountered. A list with available time slots is provided to the supervisor so employees can be scheduled at their convenience. Our scheduling clerk assists each supervisor, as necessary, to ensure the timely processing of patients.
- The state-of-the-art emergency room is comparable to local emergency rooms. A Lifepack 5, chosen for its portability, is available as a cardiac monitor/defibrillator. A Biochem Microspan Oximeter is on hand to monitor oxygen saturation. Two Dinamap vital signs monitors, and a fully equipped crash cart are readily available for life-threatening situations. Receipt of a Lifepack 9, which gives the advantage of a combined monitor/defibrillator/external pacemaker, will complement our existing equipment. Tobyhanna Army Depot's Emergency Medical Technicians (EMTs) are well trained in emergency care and maintain certification in this area.
- As a convenience to our customers, the pharmacy is located adjacent to the waiting room. Every effort is made to accommodate individuals seeking pharmaceutical services. We published and distributed a Pharmacy Formulary to active duty soldiers, retirees and their dependents. This formulary lists medications available at our pharmacy. Active duty members may present this booklet to their personal physicians so prescriptions can be written for medications currently on hand in our pharmacy, at no cost to the beneficiary, thus minimizing financial hardships and improving quality of life.
- In conjunction with Red Cross volunteers, weekly blood drives are conducted which enable the American Red Cross to collect 2,000 units of blood annually. These weekly drives ensure a steady supply of blood to over 43 hospitals. Employees who have achieved significant donations of five or more gallons are recognized for patriotic civilian service. Tobyhanna personnel are expanding and refurbishing the blood donation facilities to ensure the best possible service is maintained.
- Tobyhanna's staff of highly trained professionals surpass job requirements by maintaining certifications in all aspects of the health field. Our Supervisory Occupational Health Nurse is a College Certified Nurse Manager from Pennsylvania State University, a credit attained by few in this area. She has also completed numerous basic and advanced Occupational Health Courses. Additionally, our Licensed Practical Nurses are certified hearing specialists and have volunteered to attend a 6-week course in sign language to improve communications with Tobyhanna's hearing-impaired personnel. Our nursing staff continually strives to stay abreast of the latest medical information by attending diabetic in-service seminars at local hospitals, American Heart Association courses, and American Cancer Association classes. The addition of a full-time Registered Nurse, physician, and physical therapist ensures our commitment to provide superior health care.
- Our parent organization, Fort Meade, MEDDAC, is accredited by the Joint Commission on Accreditation of Health Care Organizations (JCAHCO). As an outlying clinic of Fort Meade, the Health Clinic at Tobyhanna makes every effort to exceed these nationally recognized standards.
- To be responsive to our clients' needs, we recently established a Medical Services Advisory Committee. This committee, chaired by the depot commander's wife, is comprised of representatives from the entire

depot community, to include single and married soldiers. The committee meets monthly to review, assess, and resolve any concerns regarding medical services furnished by the Health Clinic as well as functioning as a liaison between the depot community and the Health Clinic. As a result, health screenings were expanded, a Volunteer Program was established within the Health Clinic, and special projects were initiated, to include identifying a preferred CHAMPUS provider to streamline patient access. Members of the Medical Services Advisory Council, Officers' and Civilian Women's Club, and Health Clinic's nursing staff exhibited the true meaning of "self-help" by volunteering their talents to assist in the screening programs for Tobyhanna's Retiree Day and the Commissary's Customer Appreciation Day.

- We have established a Total Army Quality management approach in implementing our programs to include daily conferences among the nursing staff to review the day's activities and share learning experiences, thereby assuring complete customer satisfaction. We have also initiated a weekly educational in-service seminar where members of the Health Clinic alternate as instructor and present the newest aspect of medical information in their field. Recognizing the importance of keeping the work force well informed, the Health Clinic publishes articles highlighting significant programs and services in the "Health Clinic Corner" section of the depot's official weekly newspaper.
- To help employees take a step toward a healthful and productive life, the Health Clinic has established a "Walk for the Health of It" fitness program. Maps, displaying walking trails and mileage amounts, are distributed to employees who join this program. The Health Clinic devised a form to track walking distance, weight, and caloric intake and performs monthly weigh-ins. Certificates are awarded to employees who accomplish significant milestones and results are published in our depot newspaper. The Health Clinic is encouraging employees from each organization to team together and compete in the "Battle of the Bulge."
- In conjunction with the Monroe County Lung Association, we established a smoking cessation "Fresh Start Program." To date, 109 employees have attended these classes. Two of our staff members were trained by the Lung Association to conduct future classes, provide counselling, and perform follow-up evaluations. The clinic provides blood pressure, cholesterol, and blood sugar screenings to Tobyhanna employees and supporting events such as Retiree Day and Commissary Customer Appreciation Day. To date, the ongoing Hearing and Vision Program screenings served 800 and 600 clients respectively.
- A metamorphosis occurred in the preventive health care arena under the direction of the newly-appointed Supervisory Occupational Health Nurse. Bimonthly meetings with the Industrial Hygienist, Safety Director, nursing staff, and physician were established to assess, review, or resolve any potential risks at the work site. Instructional visits were implemented to prevent injury in the shop area. On her own initiative, the occupational health nurse shares her personal instructional videotapes to educate the work force on topics such as diabetes. She is establishing a full resource library and developing a training program to present videos on a regular basis.
- Tobyhanna's Vision Conservation Program has been revised this past year. In prior years, eye examinations were accomplished through a contract with a local optometrist and employees were scheduled during duty hours at off-post locations. Through an arrangement with Dunham Army Health Clinic, Department of Ophthalmology, an optometrist conducts these examinations at our clinic on a routine basis, thereby providing a cost-effective, convenient service to our customers. In conjunction with the Dental Clinic at Carlisle Barracks, we implemented a dental exam program. Biannual dental exams are conducted in the clinic for our military clients, thus eliminating travel expense and inconvenience to soldiers.

The Health Clinic is dedicated to providing legendary service and expanding capabilities. We plan to establish monthly mini-health fairs, coordinate with local hospitals to develop a medical resuscitation code-team, expand training programs for the nursing staff, and provide mammography services for prevention screening.

LEGAL SERVICES AND FACILITIES

Tobyhanna Army Depot's Legal Office provides a very diverse range of services with primary emphasis on labor, contracting, environmental, legal assistance, administrative law, and claims. We provide advice, counsel, and assistance services to Seneca Army Depot Activity personnel.

- Tobyhanna's office is staffed by two full-time attorneys, one part-time attorney and one paralegal. Our Chief Counsel has 3 years Judge Advocate General (JAG) experience and 18 years government service. The other two attorneys collectively have 7 years government experience and 9 years civilian experience. All are members of the Pennsylvania Bar Association and have been admitted to practice before the Supreme Court of Pennsylvania; two are admitted to practice before the United States Supreme Court. Tobyhanna has added an active-duty JAG Corps attorney to our staff, to enhance our prompt legal assistance to our large clientele. This is especially important with the expected increase of our single soldier population within the next few months due to the proposed mission transfer from Vint Hill Farms.
- Tobyhanna's contemporary legal facilities are conveniently located adjacent to the lobby of the Administration Building, providing a central location for civilians and military alike. Access has been greatly enhanced by the recent installation of the handicap-accessible entrance way to the Administration Building. The legal suite is comprised of private offices for staff members, a conference area, and a law library. The layout was designed to ensure confidentiality and provide the seclusion that is so essential to clients who prefer to keep personal affairs private. Staff members initiated a self-help project by decorating with coordinated wallpaper and attractive plant life and professionally matted, framed photographs of Pocono wildlife adorning the walls. The addition of these employee-driven initiatives resulted in a professional atmosphere that is not only gratifying to the customer but has provided a source of complimentary feedback from visitors of higher headquarters and other sister installations. Each staff member is equipped with a desktop personal computer and is well versed in the use of the standard windows, word processing software, the LAAWS database, and the LEXIS research services. Four personal computers were replaced with state-of-the-art 486 models, and we are installing CD-ROMS for each staff member, in addition to a new, faster, standard paper facsimile machine. The use of this modern equipment has greatly enhanced our service capabilities and significantly reduced our response time to our many and varied clients.
- Two of our attorneys and our paralegal provide legal assistance to active duty military and their dependents, reserve component members, retired military members and their dependents, and depot civilians, with the greatest priority being given to our active duty soldiers and their families. Emergency requests for assistance are acted upon immediately, and routine requests are handled at the clients' convenience, normally within three days of their requests. The majority of our requests for legal assistance are provided to transient military members and retirees. However, we have seen a large increase in our resident military population, especially single soldiers who have been transferred here with the COMSEC mission from Kentucky. Within the last 6 months, we have processed a total of 21 wills and 39 powers of attorney.
- Notary service is provided by our paralegal, without charge, on a walk-in basis or by appointment. To better serve our customers, provisions have been made with the Tobyhanna Federal Credit Union to provide back-up notary service when the paralegal is unavailable. To date, 580 documents were notarized. To ensure newly assigned military personnel are aware of the legal services available, our paralegal briefs new personnel on Legal Office operations. Through a team effort with Army Community Services, she participates in quarterly "Newcomer Orientations," where a more comprehensive briefing is presented. Particular emphasis is placed on explaining the services available in the legal assistance and claims areas and answering questions presented by the new arrivals and their family members. Our Chief Counsel is an active participant in Town Hall meetings, which are held on a regular basis.

- Tobyhanna's Legal Office serves as a Household Goods claims processing office, assisting clients with the preparation and submission of their claims. Our paralegal's vast experience as Claims Officer for many years ensures the proficient and expeditious handling of these claims, which are processed for all branches of the service. She provides assistance, in coordination with the Personal Property and Travel Office, for the investigation of potential and actual claims arising within a nine-county area, consisting of 5,600 square miles. Tobyhanna is renowned for its outstanding support in this arena, as evidenced by continuous accolades received from our approval/denial offices.
- The expertise of our Environmental Counselor is an on-going demand. In addition to providing excellent assistance to the depot's Environmental Management Division, she travels to Seneca Army Depot Activity, providing advice and assistance with regard to their environmental issues. She actively supports Total Army Quality (TAQ) initiatives by serving on Process Action Teams and is an active member of the Depot's Emergency Spill Response Team.
- Our staff is well-trained in all areas of the law. Throughout the year they attend Pennsylvania Bar Association seminars; the Judge Advocate General's School in Charlottesville; Department of Justice Seminars; environmental seminars and labor conferences. They have received training in the values and principles of TAQ and Legendary Service. Our environmental attorney successfully completed long-term training at the Army Management Staff College (AMSC). She was selected as one of AMSC's outstanding students and received the Achievement Medal for Civilian Service.
- Our Chief Counsel continues to develop the Legal TAQ Program by meeting with clients for face-to-face surveys to discuss and evaluate how we can better meet their needs. Upon completion of this assessment, Tobyhanna quickly implements valuable suggestions. This initiative provides timely feedback and allows us to constantly provide comprehensive, professional services. Tobyhanna's Chief Counsel established a Legal Service Enhancement Program where staff members received developmental positions throughout the depot. This initiative worked exceedingly well, resulting in our secretary receiving a promotion to the Command Group.
- We conduct a very active preventive law program. Our Chief Counsel presents briefings on estate planning, living wills, and durable powers of attorney to retirees and their family members during Tobyhanna's annual "Retirement Services Day"; provides yearly ethics and procurement integrity briefings to employees; and publishes bulletins regarding topics on ethical issues, tax law changes and environmental issues to depot employees, military personnel and their families. Tobyhanna's Chief Counsel is preparing a series of articles for publication in our official weekly newspaper covering aspects of the Joint Ethics Regulation. We publish a readily accessible guide to inform customers of the type of legal assistance services available. We provide Federal, state, and local tax advice and assistance to our clients. Tax forms and instruction booklets are always on hand.
- Tobyhanna's attorneys have a professional working relationship with the local bar association, and extensive liaison contacts with local attorneys, the United States Attorneys Office, the Equal Employment Opportunity Commission, the Merit Systems Protection Board, the Federal Labor Relations Authority, the Environmental Protection Agency, the Department of Environmental Resources, and local Chambers of Commerce. We work directly with the 153rd JAG Detachment located in Willow Grove, Pennsylvania, whenever a Reserve JAG attorney is needed by any of our clients.
- During Operation Desert Shield/Storm, the office established a comprehensive worksheet for use in the preparation of wills and powers of attorney and set up a continuous legal assistance appointment schedule to meet the demands placed upon our staff. Using this experience, we have procedures in place to regularly provide a full range of legal services to meet any situation.

Tobyhanna's goal is to continue providing comprehensive legal services in a timely and professional manner. We will meet this goal with the addition of the JAG attorney, the acquisition of state-of-the-art automation equipment, and the continuous attainment of legal education for staff members. We are proud of our true commitment and ability to expeditiously provide a myriad of services to meet the needs of our customers.

AAFES SERVICES AND FACILITIES

The Post Exchange at Tobyhanna Army Depot constantly strives to achieve its vision -- "To be our customers' first choice by providing high quality goods and services at low prices and at the lowest cost." The Post Exchange is a full service, multi-faceted store with a well-trained and knowledgeable sales staff who continually incorporate the AAFES core values of integrity, trust, accountability, teamwork, empowerment, compassion, risk taking, and creativity into its daily operation.

- The Post Exchange serves the needs of the depot military population, nearly 20,000 retirees, and over 10,000 reserve training components with a wide variety of goods and services. Located in the Military Service Support area, it is within walking distance of the base family housing and reserve training barracks. It shares a spacious parking lot with the adjacent Commissary and has handicap accessible parking locations near the main entrance. Ample shopping carts are located near the entrance of the Post Exchange. Hours of operation are Tuesday through Saturday, 0900 to 1700, with extended hours one night per week to accommodate customers. Patrons can purchase items from furniture to personal goods at reasonable prices. Catalog sales have improved dramatically with the addition of a direct phone line and computer ordering. Additional services offered include film processing, check cashing, Western Union, gift wrapping, shuttle transfer of merchandise not available at the store, and home delivery of major appliances, for a nominal fee.
- To maintain effective communication with the depot community, the Post Exchange managers actively participate in monthly staff meetings and quarterly Town Hall Meetings. Through a teaming effort with the Commissary, a Post Exchange/Commissary Staff Council was established, consisting of members from the military community, retirees, Reserve Components and the depot commander's wife. This council meets quarterly to obtain the military community's input and ascertains ways to support the needs of the military, to improve customer service.
- The Post Exchange actively supports depot activities by providing specials to attendees of Retirees Day and Armed Forces Day events. As a community outreach initiative, the Post Exchange conducts a Halloween costume party for the children of the military community, awarding prizes for best costumes. In addition, the Exchange sponsors a "Candy Giveaway" during the Christmas Holiday.
- The Post Exchange contributed \$192,054 to the depot's Morale, Welfare, and Recreation fund last year and approximately \$50,000 through June of this year. Prizes are donated for many depot activities, such as golf tournaments. A complimentary gift package is presented to newly arriving military families to introduce them to the Post Exchange facilities. Several Post Exchange employees are active members of the "Toby Ladies" Club and volunteer their time by participating in "self-help" efforts that improve the quality of life throughout the depot and surrounding communities. For example, with donations provided by the Commissary, the "Toby Ladies" volunteered to make and sell ice cream sundaes and root beer floats to benefit the Junior Achievement Program conducted at a local elementary school.
- Due to the small military population at Tobyhanna, military clothing is stocked in limited quantities. To satisfy the clothing needs of soldiers, weekly shuttle trips are made to larger Post Exchanges located at Carlisle Barracks and Fort Indiantown Gap.
- The merger of the Class VI store with the Post Exchange proved to be a huge success. This relocation offers customers the convenience of one-stop shopping. The Class VI store has increased its range of merchandise as the direct result of suggestions solicited from patrons. Items are competitively priced in an environment comparable to commercial facilities. Vendors provide monthly specials to increase customers' savings. Vendors donate merchandise for many giveaways and sweepstakes, thereby promoting sales and attracting customers.

- As a convenience to customers, a barber shop and hot dog concession stand are located within the main entrance of the Post Exchange. A six pump, full-service gasoline station is situated directly across the street.
- Results of a customer survey recently conducted displayed highly favorable comments. Customer feedback indicated complete satisfaction with merchandise selection and services. To continuously improve customer effectiveness, employees attend Sales Associate Certification Training and monthly meetings for the purpose of sharing ideas and experiences. With a yearly sales of \$2.6 million, profits increased by 123%. This is attributed to new lines of merchandise which were initiated at the request of our customers.

The Post Exchange is an integral part of the Tobyhanna Army Depot military community. It is committed to providing excellence in customer service by incorporating core values into daily practice and constantly providing high-quality, affordable merchandise to its families, retirees, and single soldier population.

Document Separator

PHYSIC-MEDIC
BANK OF AMERICA

HEALTH CARE

AND RESE

AND

CLINICAL



TOBYHANNA

ARMY DEPOT

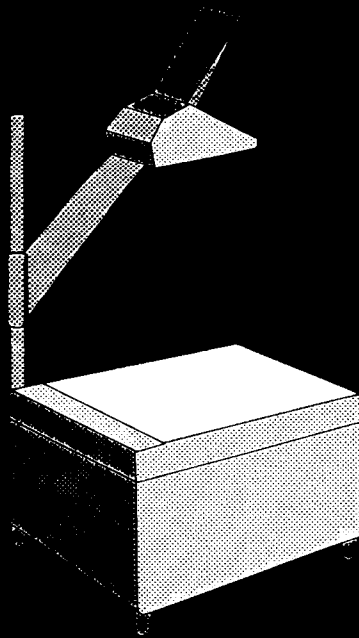
**EXCELLENCE
IN ELECTRONICS**

2CG

ITINERARY

BRAC STAFF VISIT

- **TOBY STORY**
- **COMMAND OVERVIEW**
- **INTERSERVICE BRIEFING**
- **MAINTENANCE TOUR**
- **LUNCH**



3CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

- **MISSION**
- **ORGANIZATION**
- **MANAGEMENT**
- **VISION**

4CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

DEPOT MISSION COMMUNICATIONS - ELECTRONICS



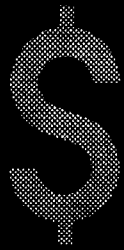
5CG

MAINTENANCE

TRAINING

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS



DEFENSE BUSINESS OPERATION FUND

- MUST PRODUCE



1. QUALITY PRODUCT
2. ON TIME
3. AT LEAST POSSIBLE COST

- BUYER-SELLER
RELATIONSHIP



1. CUSTOMERS PAY FOR
WHAT THEY RECEIVE
2. PRODUCTION DEPENDENT UPON
ORDERS FROM CUSTOMERS
3. MUST REMAIN COMPETITIVE

- OPERATES ON A PROFIT/LOSS

- HAS ITS OWN INVENTORY

- WORKING CAPITAL ORIGINALLY PROVIDED BY CONGRESS

- PURCHASES AND DEPRECIATES CAPITAL EQUIPMENT

6CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

TOBYHANNA ARMY DEPOT

COMMANDER
COL MICHAEL A. LINDQUIST
CEA FRANK W. ZARDECKI

SENECA ARMY DEPOT
ACTIVITY
LTC ROY E. JOHNSON

D/MAINT
LTC R. REPERT

D/PUBLIC WORKS
J.SCOTT

D/CONTR
T.GARUBBA

D/RM
J.YAREMKO

D/IM
B.HUNTLEY

D/PERSONNEL
J. McANDREWS

D/SEC & COMM
SVCS
LTC H. NORQUIST, JR.

SAFETY
R.BARNIKOW

QUALITY ASSUR
OFC
R.YOUNG

SBO
J.LESNIAK

EEO
N.ABROMAVAGE

LEGAL
M.FUTCH

PAO
K.TOOLAN

IRAC
J.PIERONTONI

7CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

ATTACHED TENANT ACTIVITIES

DEF LOG AGENCY
DDTP

DEFENSE FINANCE &
ACCOUNTING SERVICE

USA LOG SPT ACTIV
PKG STG & CONT CTR

USA DIST TMDE
SPT CENTER

JOINT VISUAL INFO
ACTIVITY

DEF COMMISSARY
AGENCY

USA MEDICAL
MATERIEL AGENCY

CORPS OF
ENGINEERS

PX/AAFES

DEF REUTILIZATION
& MARKETING OFC

USA HEALTH CLINIC

DEFENSE PRINTING
SERVICE

LOG ASST DIV
CECOM

SPACE & TERRESTRIAL
COMMUNICATIONS DIR

US FISH AND
WILDLIFE SERVICE

US ARMY RESERVE CENTER
305th SIGNAL COMPANY

TOTAL
684

8CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

SENECA OVERVIEW

- 15 JUL 93 - DESIGNATED DEPOT ACTIVITY
- MANPOWER
 - 1 MILITARY 285 CIVILIANS
- MISSION
 - RECEIPT, STORAGE, ISSUE, MAINTENANCE,
DEMILITARIZATION, AND DISPOSITION OF CONVENTIONAL
AMMUNITION, AND OTHER COMMODITIES



9CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

PANAMA - CONSOLIDATED MAINTENANCE SUPPORT FACILITY

- 10 JAN 93 - OPERATIONAL CONTROL
- MAINTENANCE
 - SECURE INFORMATION MANAGEMENT SYSTEMS (SIMS)
 - NON-TACTICAL RADIOS (NTR)
 - SECURE AND NON-SECURE ADPE
 - MICROWAVE SYSTEMS
- 29 EMPLOYEES
- SOUTH AMERICAN SUPPORT



10CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

TOBYHANNA ARMY DEPOT

**LARGEST
EMPLOYER
NE PENNSYLVANIA**

**3,563
EMPLOYEES**

**AVG AGE 45
AVG SALARY
\$31,470**

**200
OCCUPATIONAL
SKILLS**

**\$204.3 MILLION
OPERATING
BUDGET**

**TOTAL INVENTORY
\$3.7 BILLION**

11CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

ATTRIBUTES

**LARGEST
ELECTRONICS
FACILITY IN DOD**

**35 YEARS
EXPERIENCE IN
AUTOMATIC TEST
EQUIPMENT**

**STATE-OF-THE-ART
EQUIPMENT**

**HIGHLY
SKILLED
WORK FORCE**

**IN-HOUSE TECHNICAL
TRAINING CENTER**

**LARGEST
PRODUCTION
ENGINEERING
ORGANIZATION IN
DESCOM**

12CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

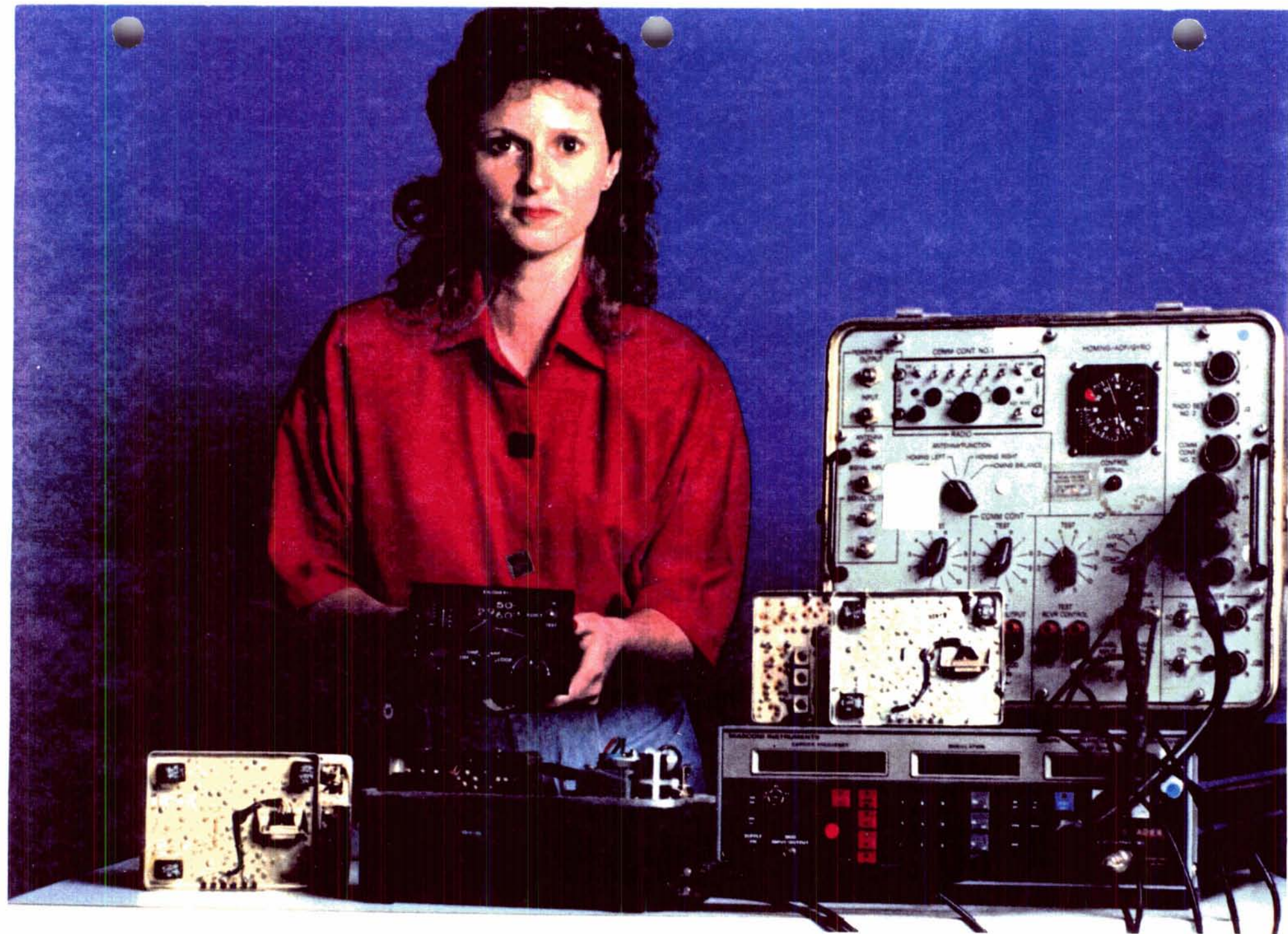
COMMUNICATIONS-ELECTRONICS SOURCE OF REPAIR (SOR)

- COMMUNICATION SYSTEMS
 - SATELLITE COMMUNICATIONS
 - ✓ TACTICAL TERMINALS
 - ✓ STRATEGIC TERMINALS
 - VOICE COMMUNICATIONS
 - ✓ SINCGARS
 - ✓ VRC/PRC FAMILIES
 - ✓ AIRBORNE
 - DATA COMMUNICATIONS
 - ✓ TELECOMMUNICATIONS
 - ✓ BURST COMMUNICATIONS
 - ✓ SWITCHING SYSTEMS
- COMMAND AND CONTROL SYSTEMS
 - FIRE CONTROL
 - ✓ FIELD ARTILLERY
 - ✓ AIR DEFENSE
 - OPERATIONS
 - AIR TRAFFIC CONTROL
- SURVEILLANCE AND TARGET ACQUISITION
 - RADAR /INTERROGATOR SYSTEMS
- AVIONICS
 - DOPPLER RADAR SYSTEMS
 - NAVIGATION SYSTEMS
 - COUNTERMEASURE SYSTEMS
- INTELLIGENCE AND ELECTRONIC WARFARE
 - SENSOR SYSTEMS
 - COUNTERMEASURE SYSTEMS
 - SIGNAL
- AUTOMATIC DATA PROCESSING SYSTEMS
- POWER SYSTEMS
- ELECTRONIC SUPPORT EQUIPMENT
- COMSEC EQUIPMENT

13CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS



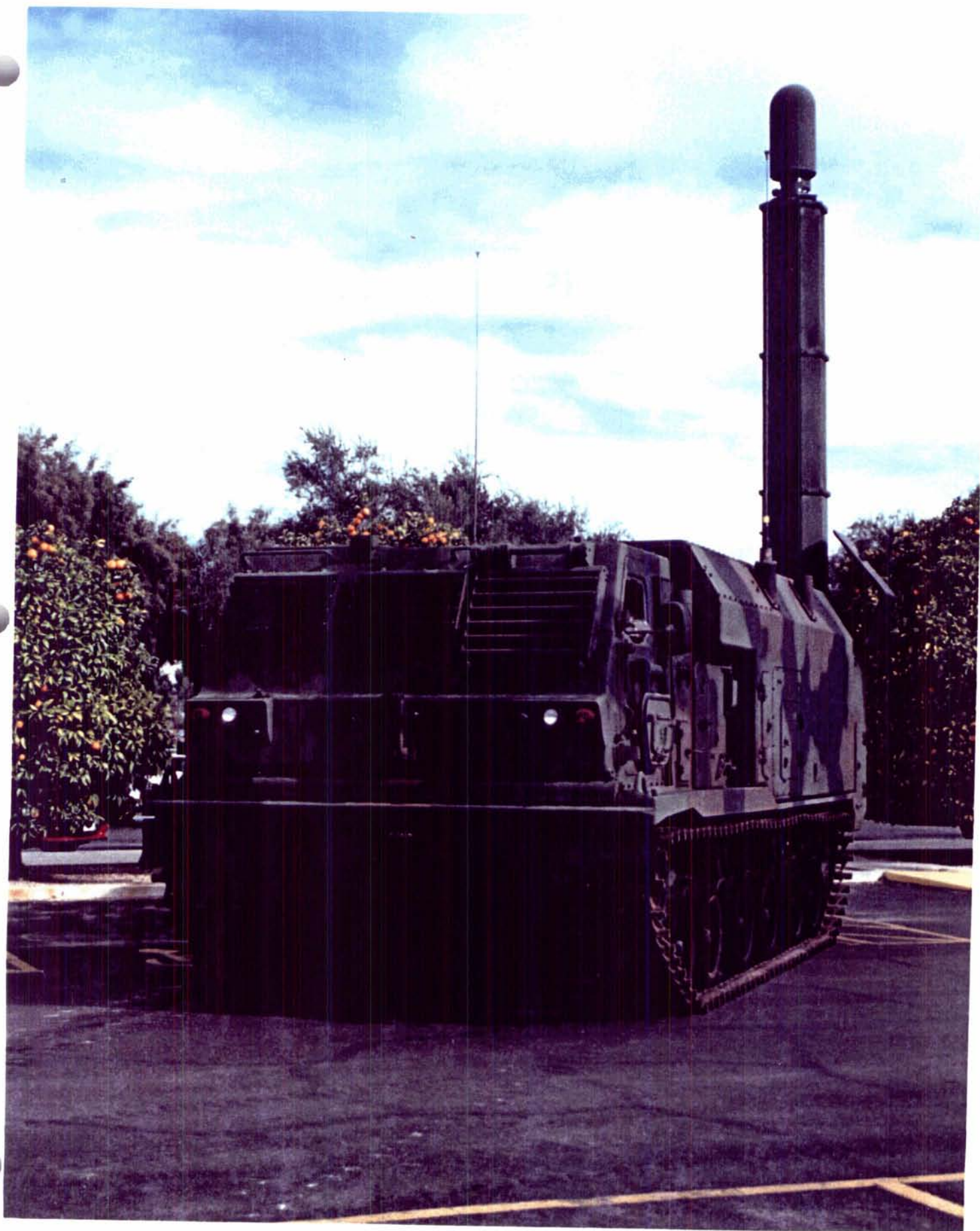
COMMUNICATIONS-ELECTRONICS SOURCE OF INTEGRATION

- MULTI-SERVICE COMMUNICATIONS SYSTEMS
 - AN/TRC-173/174/175 AND 138 DGM
- SATELLITE COMMUNICATION SYSTEMS
 - DOWNSIZED AN/TSC-93B TACSAT
 - DCSS/DOCS SITES (FIXED AND VAN)
- REMOTE RELAY SYSTEM (GUARDRAIL)
- AN/TRC -170V3 RETROFIT
- AN/ASM-147C SHELTER FABRICATION
- AN/MYQ-6 CORPS THEATRE ADP SERVICE CENTER II (CTASC II)
- DIGITAL EUROPEAN BACKBONE (DEB)
- AN/ASM-190B SHELTER FABRICATION
- TACTICAL QUIET GENERATOR (TQG)
- AN/TPO-36 AND 37 FIREFINDER MODS
- SINGARS HELICOPTER INTEGRATION KITS
 - BLACKHAWK (UH-60, EH-60)
 - AH-64 APACHE
- JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM (JTIDS)
- JOINT STARS (J-STARS) EFVS PROTOTYPE
- AN/TLO-17 TRAFFIC JAM SYSTEM MODIFICATION PACKAGE
- RELOCATABLE ARMY PROCESSORS FOR INTELLIGENCE DATA EUROPE (RAPIDE)
 - DEPLOYABLE INTELLIGENCE SUPPORT ELEMENT (DISE)

15CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS



DOWNSIZED AN/TSC-93B

SATELLITE COMMUNICATIONS TERMINAL

- 7 AUGUST - URGENT CALL
18TH ABN CORPS
- WORKED 23 STRAIGHT HOURS
STRIPPED AND REASSEMBLED
RE-WELDED STRUCTURES
PAINTED FULL SYSTEM - TAN 686
- 8 AUGUST - SYSTEM AND TOBYHANNA SUPPORT
TEAM TO FT BRAGG
- 9 AUGUST - SUCCESSFUL HANDOFF TO UNIT

**LTG HILMES
SGT BLACK**

**8 ADDITIONAL
SYSTEMS
DEVELOPED**

17CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS



FLEXIBLE COMPUTER INTEGRATED MANUFACTURING

- LAST SOURCE OF MANUFACTURING
- TAILORED TO MEET CUSTOMER REQUIREMENTS
- FAST RESPONSE TO FIELD
- 30 DAY TURNAROUND TIME
- STATE-OF-THE-ART TECHNOLOGY
- TOBYHANNA - LEADER IN FCIM ELECTRONICS

19CG

MANUFACTURING

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

FCIM MILESTONES

- | | |
|-------------------------------|--------|
| ● ELECTRONIC DATA INTERCHANGE | NOV 92 |
| ● CAD CONFERENCING | JUN 94 |
| ● NAVY BID MODULE | SEP 94 |
| ● PWA RAMP | OCT 94 |
| ● JEDMICS | NOV 94 |
| ● TECHNOLOGY CENTERS | DEC 95 |

20CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

POWER PROJECTION FY95 TECH ASST TEAMS CONUS

STATE

EMPLOYEES

STATE

EMPLOYEES

TOTAL

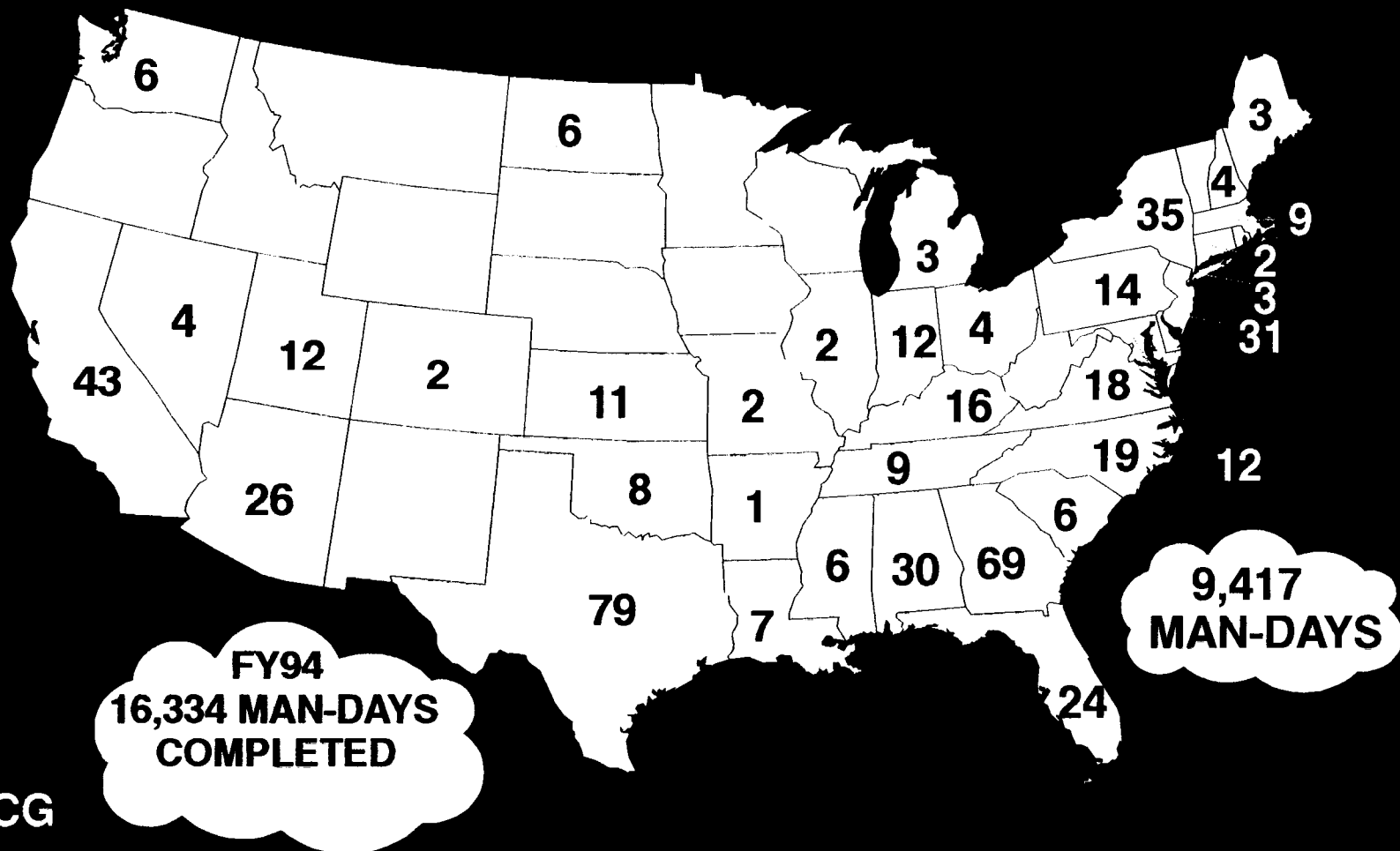
538

21CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

POWER PROJECTION FY95 TECH ASST TEAMS CONUS COMPLETED



22CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

POWER PROJECTION FY95 WORLDWIDE TECH ASST TEAMS

OCONUS

OF EMPLOYEES

23CG

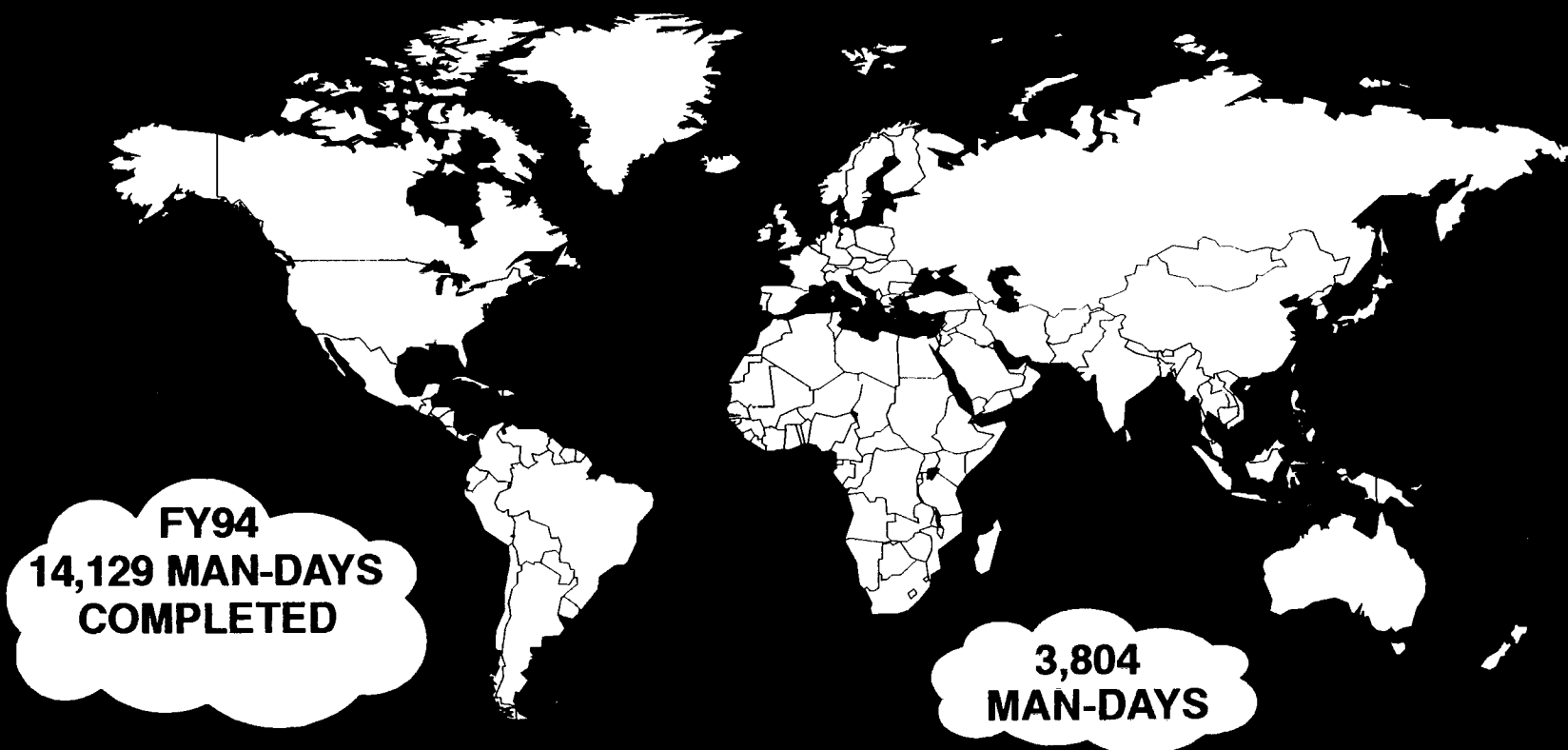
TOTAL

120

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

POWER PROJECTION FY95 TECH ASST TEAMS OCONUS COMPLETED



24CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

RESERVE COMPONENT TRAINING

USAR	SOLDIER		SOLDIER				
	UNITS	MAN-DAYS	UNITS	OFF	WO	ENLISTED	MAN-DAYS
ANNUAL TRNG	24	4,351	0	0	0	0	0
INACTIVE DUTY TRNG	51	3,910	41	12	13	583	1848
ARNG							
ANNUAL TRNG	12	3,837	0	0	0	0	0
INACTIVE DUTY TRNG	18	1,369	5	2	1	47	150
CONVOYS							
USAR	4	598	0	0	0	0	0
ARNG	8	4,566	0	0	0	0	0
TOTAL	117	18,631	46	14	14	630	1998

**PROJECTED
FY 95
16,350**

25CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS



MODERNIZATION PROJECTS SINCE 1990

CONSTRUCTION	\$45.0M
CAPITAL INVESTMENT	\$47.0M
NEW WEAPON SYSTEMS SUPPORT	\$16.0M
JLSC	<u>\$ 2.0M</u>
TOTAL	\$110.0M

27CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

MODERNIZATION EXAMPLES

**COMSEC MISSION FACILITY
TELEPHONE SWITCH
SATCOM MISSION FACILITY
TACTICAL END ITEM REPAIR FACILITY
MODERNIZATION OF OFFICES
LOCAL AREA NETWORK
HAZMAT SPILL CONTROL FACILITY
MULTILAYER CIRCUIT BOARD
COMPUTER AIDED ENGINEERING
RELOCATION OF MACHINE SHOP
MACK FIELD HOUSE RENOVATION
RENOVATION OF COMMUNITY CLUB
BUILDING 11 ENTRANCE**

28CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

MCA PROGRAM

<u>FY 91</u>	<u>PROGRAMMED</u>	<u>ACTUAL</u>
● WATER SYSTEM EXTENSION	\$.88 M	\$0.4 M
● I-380 ACCESS ROAD	5.00 M	2.4 M
● SATCOM FACILITY	6.85 M	4.6 M
● COMSEC FACILITY	13.20 M	12.6 M

29CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

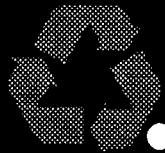
MCA PROGRAM

<u>FY 92</u>	<u>PROGRAMMED</u>	<u>ACTUAL</u>
● TACTICAL END ITEM REPAIR FACILITY	\$ 8.2 M	3.7 M
● HAZARDOUS MATERIAL STORAGE FACILITY	1.9 M	2.1 M
FY 94		
● COAL PILE RUNOFF	.7 M	.7 M
FY 95		
● INDUSTRIAL OPERATIONS FACILITY	17.0 M	

30CG

ARMY DEPOT

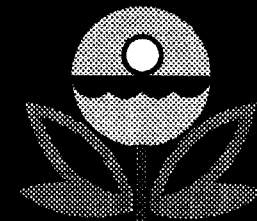
EXCELLENCE
IN ELECTRONICS



ENVIRONMENTAL STEWARDSHIP

- **POLLUTION PREVENTION PROGRAM**

- HAZARDOUS WASTE MINIMIZATION
- WATER AND AIR RESOURCES MANAGEMENT
- RECYCLING PROGRAM
- INSPECTION & EDUCATION
- EMERGENCY RESPONSE TEAM



- **RESULT**

- GOVERNOR'S RECYCLING AND SOLID WASTE REDUCTION AWARDS
- ARMY HAZARDOUS WASTE MINIMIZATION AWARD
- ARMY ENVIRONMENTAL QUALITY AWARD
- POCONO NORTHEAST COMMUNITY AWARD FOR ENVIRONMENTAL ACTION
- GOVERNOR'S WASTE MINIMIZATION AWARDS
- PARTNERS IN PROTECTING THE ENVIRONMENT
- EPA STRATOSPHERIC OZONE PROTECTION AWARD
- NEPA ENVIRONMENTAL PARTNERSHIP AWARD
- ARMY AWARD FOR RECYCLING PROGRAM

31CG

SAFETY AND HEALTH INITIATIVES

OCCUPATIONAL SAFETY AND HEALTH PROGRAMS

WORK PLACE SAFETY COMPLIANCE

ACCIDENT / INJURY PREVENTION

AWARENESS AND EDUCATION

WORK FORCE PROTECTION

RECREATIONAL SAFETY

HAZARD ANALYSIS

SYSTEM SAFETY



RECOGNITIONS:

1991 DESCOM SYSTEMS SAFETY AWARD

1992 GOVERNOR'S AWARD FOR TRAFFIC SAFETY

1992 DESCOM SYSTEM SAFETY AWARD OF EXCELLENCE

**1993 COMMONWEALTH OF PENNSYLVANIA NATIONAL
SAFETY BELT COMPLIANCE AWARD**

32CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

LABOR-MANAGEMENT PARTNERSHIP COUNCIL

BACKGROUND

- THE NATIONAL PERFORMANCE REVIEW (7 Sep 93)
- LABOR-MANAGEMENT PARTNERSHIPS (EO 12871 - 1 Oct 93)
- ESTABLISHED TOBYHANNA LMPC (2 Jun 94)

LABOR-MANAGEMENT PARTNERSHIP COUNCIL

- PURPOSE

EMPOWER OUR EMPLOYEES

LINK TAQ INFRASTRUCTURE WITH STRATEGIC PLAN

CUSTOMER FOCUS

CONTINUOUS IMPROVEMENT

STREAMLINE LABOR-MANAGEMENT RELATIONS

- STRUCTURE--8 CORE & 4 NON-CORE (ROTATIONAL)

CORE (CO-CEA-D/RM-D/P)

(PRES-2nd EXEC VP-TREAS-MEMBER OF EXEC COUNCIL)

NON-CORE (2 MGRs {MAINT/OTHER} & 2 EMPLOYEES

{MAINT/OTHER})



33CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS



BASE REALIGNMENT AND CLOSURE IMPACT

- **BRAC 88**
 - **LEXINGTON ARMY DEPOT CLOSED**
WORKLOAD TRANSFERRED TO TOBYHANNA
- **BRAC 91**
 - **SACRAMENTO ARMY DEPOT CLOSED**
WORKLOAD COMPETED WITH AIR FORCE
- **BRAC 93**
 - **VINT HILL FARMS STATION CLOSED**
IMMC REPAIR TO TOBYHANNA
 - **TOOELE ARMY DEPOT CLOSED**
TOPOGRAPHIC SURVEY MISSION TO TOBYHANNA

35CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

BASE CLOSURE

BLUE GRASS TO TOBYHANNA

- **WORKLOAD TRANSFERRED**
COMSEC
C-E MAINTENANCE

- **MANPOWER**

BRAC COMMISSION REPORT - 29 DEC 88

24 MILITARY 410 CIVILIANS

DA SUMMARY FOR ARMY IMPLEMENTATION

18 MILITARY 273 CIVILIANS

COMSEC

18 MILITARY 85 CIVILIANS

- **CONTRACT AWARDED 27 NOV 91 - \$9.91 MILLION**
- **CONSTRUCTION COMPLETED 24 DEC 93**

36CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

BRAC 91

CLOSURE OF SACRAMENTO ARMY DEPOT

- **COMPETITION OF SACRAMENTO WORKLOAD**
- **PREPARATION OF BID PACKAGES - FY92 THRU FY93**
- **TOAD WINS 4 OF 5 COMPETITIONS**
- **ONLY ARMY DEPOT TO WIN**

37CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

BRAC 93

- VINT HILL FARMS STATION, VA CLOSED
 - 20 CIVILIANS
 - 43 MILITARY
 - TACTICAL AND STRATEGIC SIGNAL INTELLIGENCE
 - SECURE MISSION WITH SPECIAL FACILITIES
 - TARGET DATE FOR COMPLETION - 30 JUNE 95

38CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

TOBYHANNA ARMY DEPOT COSTING INFORMATION

\$

\$

- **LOWEST HOURLY COST OF
MAINTENANCE DEPOTS**
- **HIGH MANAGEMENT PRIORITY
TO KEEP COSTS DOWN**
- **VALIDATED BY AAA / GAO**

39CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

CONTRIBUTING FACTORS

- ✓ TOBYHANNA IS A SINGLE-COMMODITY DEPOT
- ✓ HIGH EMPHASIS ON TECHNICAL SKILLS/TRAINING
- ✓ HIGH UTILIZATION OF AUTOMATIC TEST EQUIPMENT
- ✓ FLEXIBILITY TO RECONFIGURE SHOPS
- ✓ FACILITY UNDER ONE ROOF
- ✓ ABILITY TO MOVE PERSONNEL BETWEEN COST CENTERS

41CG



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

**LABOR -
MANAGEMENT
RELATIONS**

**LOCALITY WAGE
AREA ONE OF
LOWEST IN
COUNTRY**

**HIGH DIRECT TO
INDIRECT RATIO**

**CONTRIBUTING
FACTORS**

**ORGANIZATIONAL
STRUCTURE**

**HIGH DIRECT
LABOR YIELD**

**GRADE
STRUCTURE**

42CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

AWARDS 1994

- **NATIONAL**

- VICE PRESIDENT'S NATIONAL PARTNERSHIP RECOGNITION
- EPA STRATOSPHERIC OZONE PROTECTION AWARD

- **ARMY**

- ARMY COMMUNITIES OF EXCELLENCE AWARD
- SECRETARY OF THE ARMY ENVIRONMENTAL QUALITY
- SECRETARY OF THE ARMY HAZARDOUS WASTE MINIMIZATION
- CHIEF OF STAFF MAINTENANCE EXCELLENCE HIGH DENSITY
- AMC VALUE ENGINEERING AWARD
- AMC SMALL SECURITY FORCE
- DESCOM WORK CENTER OF THE YEAR
- DESCOM SAFETY EXCELLENCE AWARD

- **PENNSYLVANIA**

- GOVERNOR'S LABOR- MANAGEMENT
- GOVERNOR'S WASTE MINIMIZATION
- GOVERNOR'S RECYCLING



43CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

MANAGEMENT EMPHASIS

STRATEGIC PLANNING

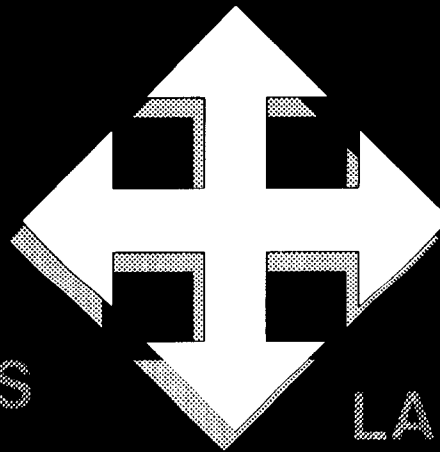
PRODUCTIVITY

SAFETY

COST EFFECTIVENESS

LABOR RELATIONS

ENVIRONMENTAL STEWARDSHIP



44CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

TOBYHANNA

DOD ELECTRONICS CENTER

**TACTICAL/STRATEGIC
ELECTRONICS REPAIR**

ARMY COMSEC

**SATELLITE COMM
CENTER**

THE ELECTRONIC
ASSEMBLAGE MFR

**ELECTRONICS WEAPONS
SYSTEMS INTEGRATOR**

PREMIER DOD
PROTOTYPER

**SYSTEMS DOWNSIZING
EXPERT**

FCIM SITE

ATE/TPS CENTER

**CURRENT
FUNCTIONS**

VISION

ATTRIBUTES

HIGH TECH TRNG CTR

**DOD ELECTRONICS
REPAIR CENTER**

DOD COMSEC CENTER

**SOF SUPPORT
CENTER**

DOD FCIM SITE
FOR ELECTRONICS

**TECHNOLOGY
INSERTION**

ELECTRONIC LABS
MFG CENTER

CALS CENTER

ARPA'S APPLICATION
SITE

- CAPACITY TO ASSUME DOD WORKLOAD
- LOWEST COST • GREATEST PRODUCTIVITY
- TQM PIONEER • ENVIRONMENTALLY SOUND • EXPANDABILITY
- STATE-OF-THE-ART FACILITY • STRATEGIC LOCATION
- HIGH TECH, SKILLED WORK FORCE/HIGH QUALITY OF LIFE
- LARGEST ENGINEERING BASE • MOBILIZATION CAPABILITY
- LARGE LOCAL TECHNICAL LABOR POOL

45CG

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

TOBYHANNA ARMY DEPOT



VISION

**THE COMMUNICATIONS - ELECTRONICS
LOGISTICS CENTER OF CHOICE
INTO THE 21st CENTURY**

46CG

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

Document Separator

TOBYHANNA ARMY DEPOT BUSINESS PERSPECTIVES WORKLOAD PROFILE

31 MARCH 1995

ARMY DEPOT

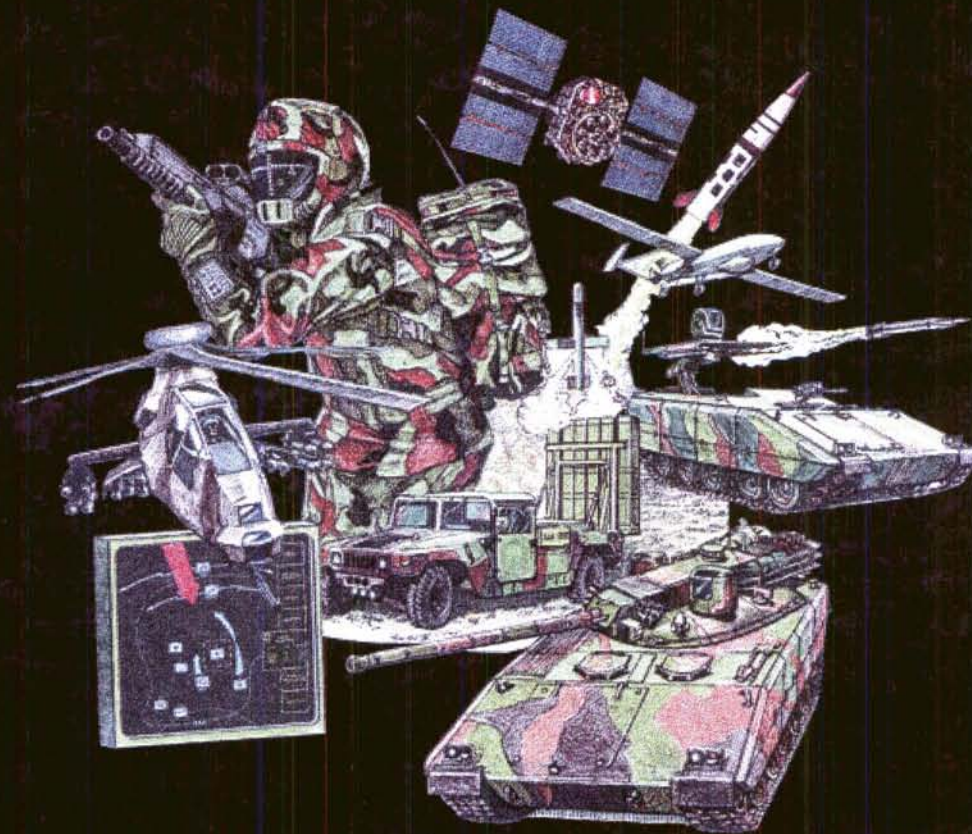
**EXCELLENCE
IN ELECTRONICS**

TOBYAMA

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

*Utilizing
Advanced Technologies
to Support the
Army of the Future*



MAINTENANCE MISSION WORKLOAD

28 FEBRUARY 1995

	OVERHAUL		FABRICATION		TOTAL
TOTAL PROGRAM \$	\$213.125	60%	\$141.973	40%	\$355.098
TOTAL PROGRAM MHRS	2.848	62%	1.716	38%	4.564
AUTHORIZED \$	\$150.946	52%	\$140.938	48%	\$291.884
AUTHORIZED MHRS	2.167	56%	1.716	44%	3.883
EXECUTED \$	\$49.502	62%	\$30.762	38%	\$80.264
EXECUTED MHRS	.830	65%	.447	35%	1.277
EXECUTED MATERIAL \$	\$8.034	56%	\$6.264	44%	\$14.298

NOTE: FIGURES IN MILLIONS

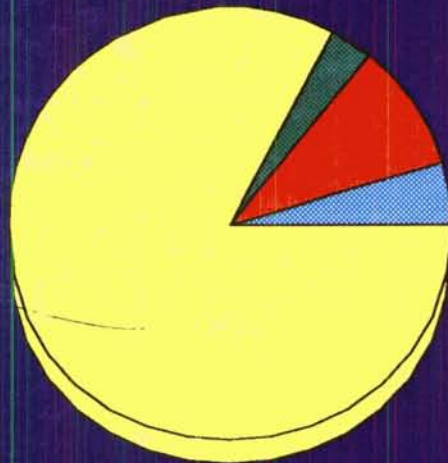
ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

PRINCIPAL CUSTOMERS MAINTENANCE

28 FEBRUARY 1995

FY 90



DESCOM

\$7.985 3.2%

ATCOM

\$24.130 9.5%

OTHERS

\$11.506 4.6%

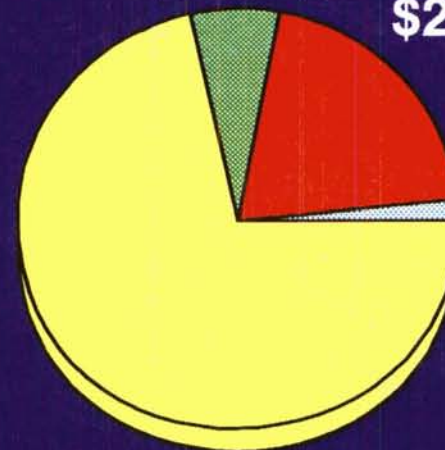
CECOM

\$208.406 82.7%

\$252.027

FIGURES IN MILLIONS

FY 95



DESCOM

\$27.780 7.8%

ATCOM

\$69.658 19.6%

OTHERS

\$5.920 1.7%

CECOM

\$251.740 70.9%

\$355.098

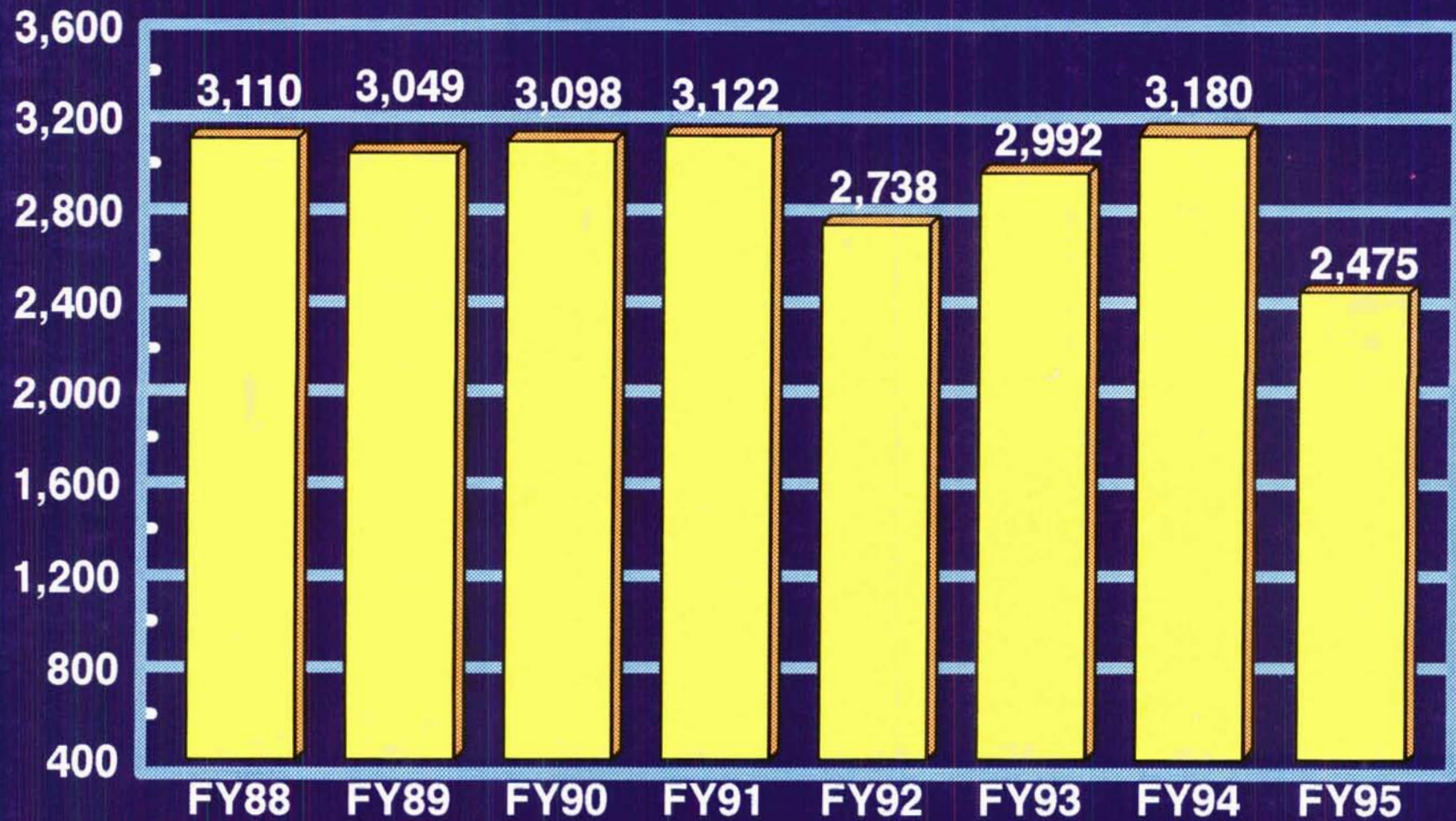
ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

MAINTENANCE DIRECTORATE

28 FEBRUARY 1995

OF PRONS



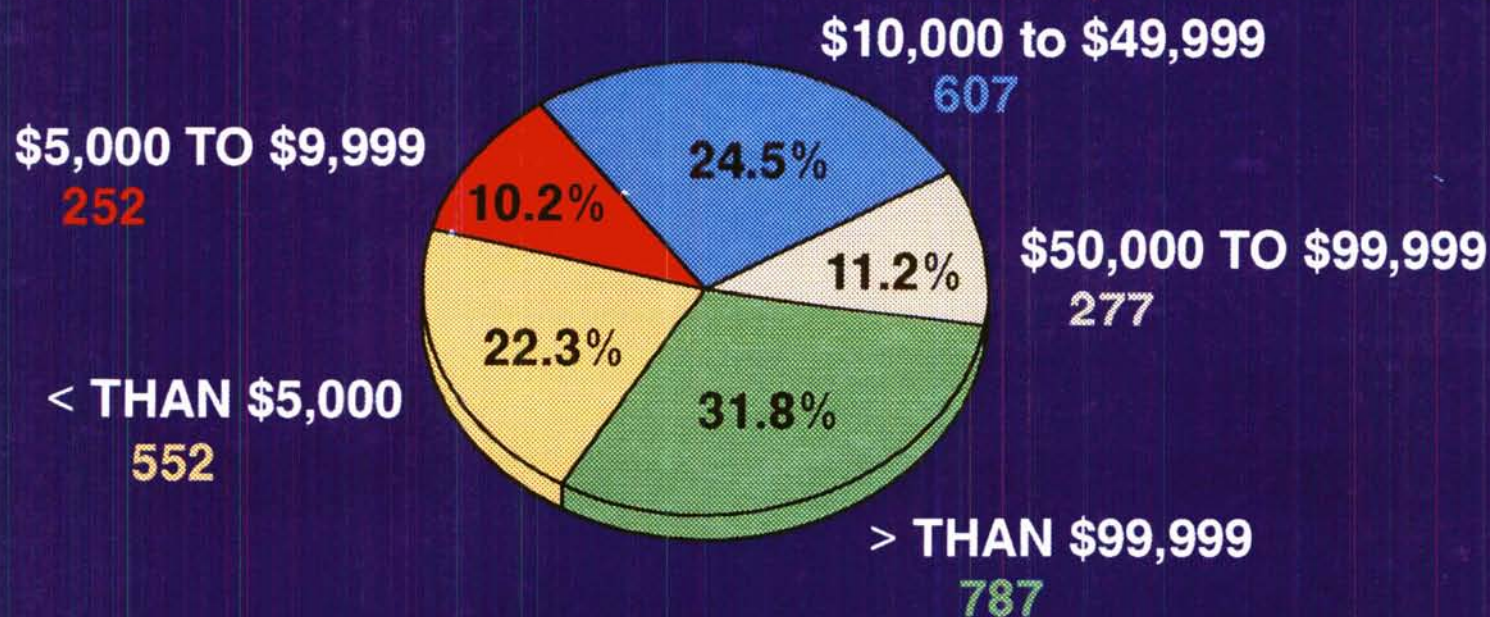
ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

MAINTENANCE DIRECTORATE

% OF TOTAL REMAINING PRONS BY \$ VALUE

28 FEBRUARY 1995



TOTAL # OF PRONS
2,475

AVG \$ VALUE PER PRON
\$143,474

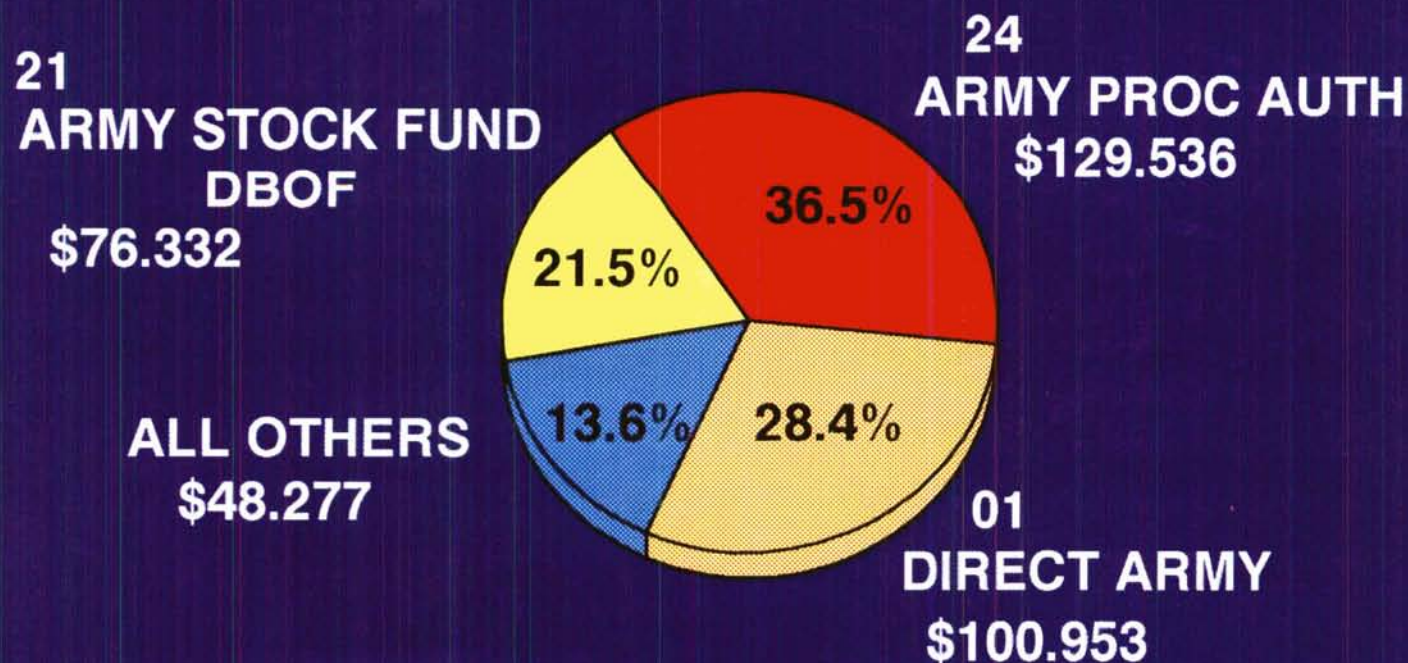
AVG QTY PER PRON
41

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

MAINTENANCE DIRECTORATE CUSTOMERS

TOTAL PROGRAMMED FUNDS (M)
28 FEBRUARY 1995
\$355.098



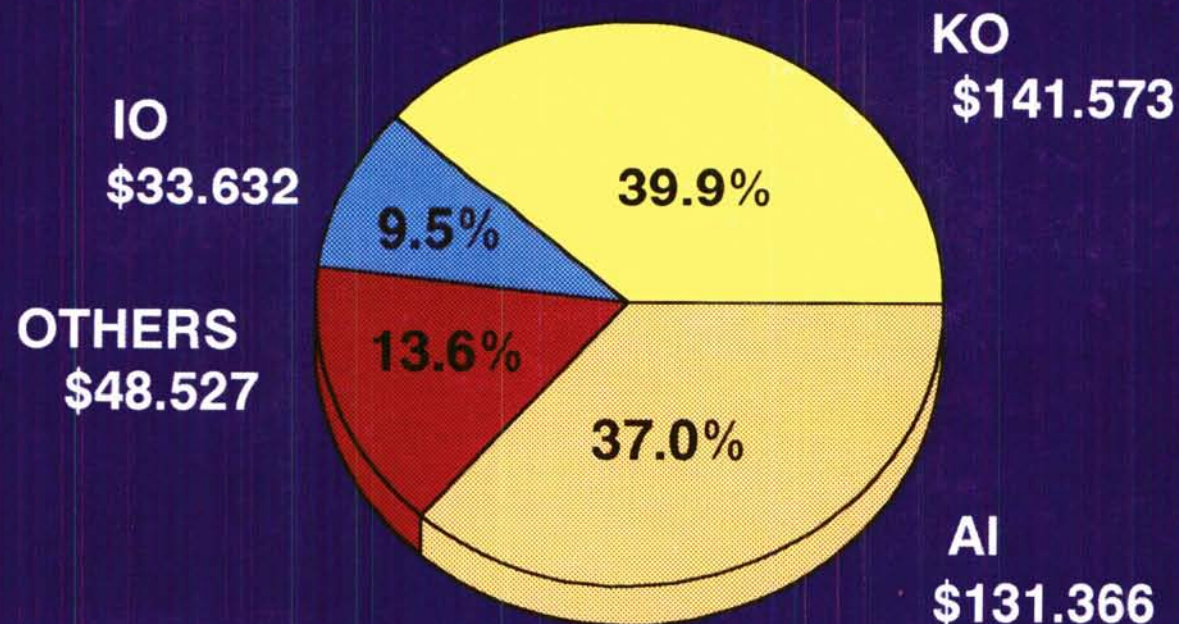
ARMY DEPOT

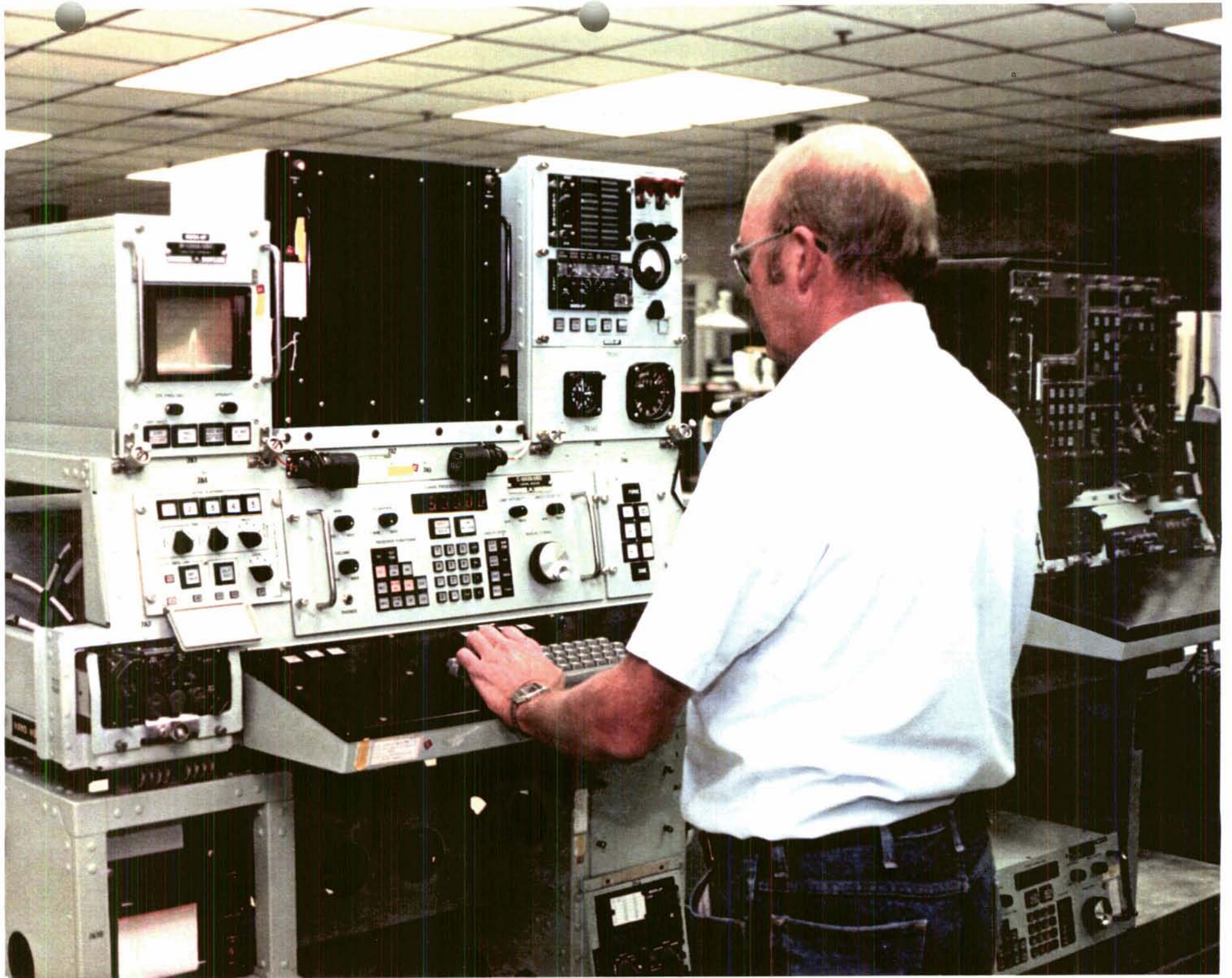
EXCELLENCE
IN ELECTRONICS



MAINTENANCE DIRECTORATE WORK PERFORMANCE CODES

TOTAL PROGRAMMED FUNDS (M)
28 FEBRUARY 1995
\$355.098





PEO/PM SUPPORT

TOTAL AUTHORIZED DOLLARS

PM	\$\$ MILLIONS	PM	\$\$ MILLIONS
TQG (INCL AF)	31.011	ASAS	2.040
SATCOM	46.330	AN/TRC-170 V2	.640
AN/ASM-190B	5.700	AN/TRC-170 V3	1.350
JTACS	.800	EQUATE	1.998
RAPIDE	.507	FIREFINDER	22.500
TACMIS	.395	AIR COND UNITS	36.655
UH-60	7.352	ASPO	.559
ADCCS	1.621		



INTERSERVICED WORKLOAD

CUSTOMER

MHRS

AIR FORCE

359,135

NAVY

68,394

MARINES

28,795

OTHER

190,729

TOTAL

647,053.....14%

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

EXAMPLES OF INTERSERVICED WORKLOAD

AIR FORCE

AF MUX SYSTEMS
SHF SATELLITE TERMINAL
GLOBAL POSITIONING SYSTEMS

NAVY

TRIDENT GUIDANCE SYSTEM
HEAVY SATELLITE TERMINAL
NAVIGATION SETS

MARINES

INTERIM FORCE AUTOMATED SERVICE CENTER (IFASC)
INTERROGATOR PROGRAMMER
POSITION LOCATION REPORTING SYSTEMS (PLRS)

OTHER

NASA
THE WHITE HOUSE
BORDER PATROL

ARMY DEPOT

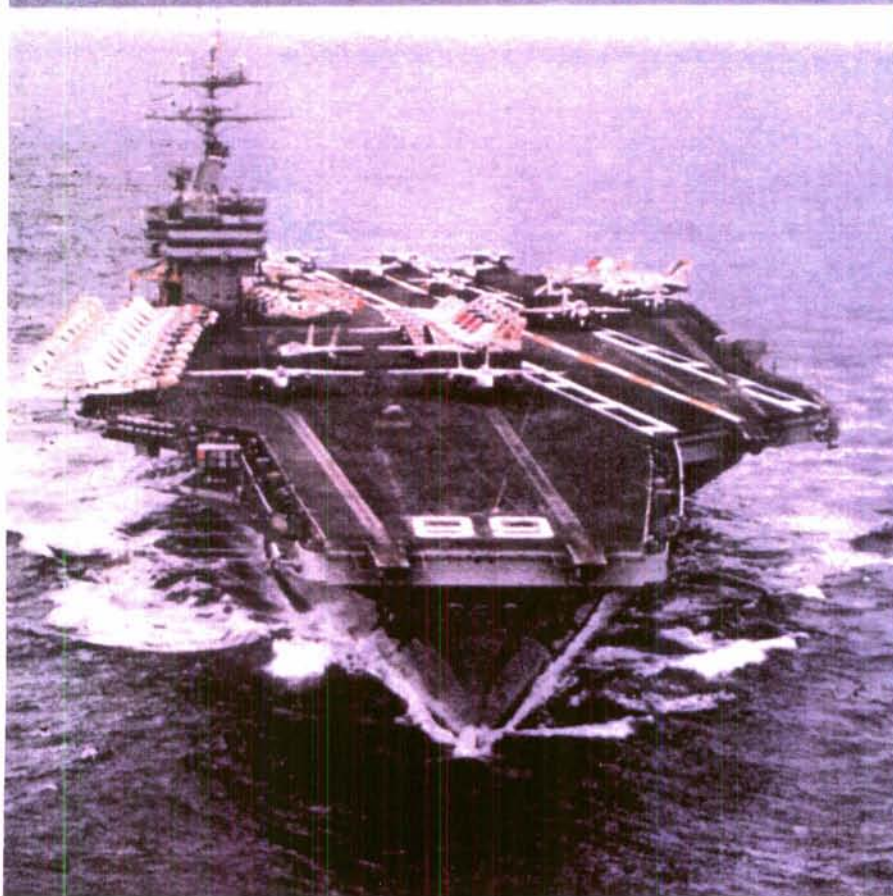
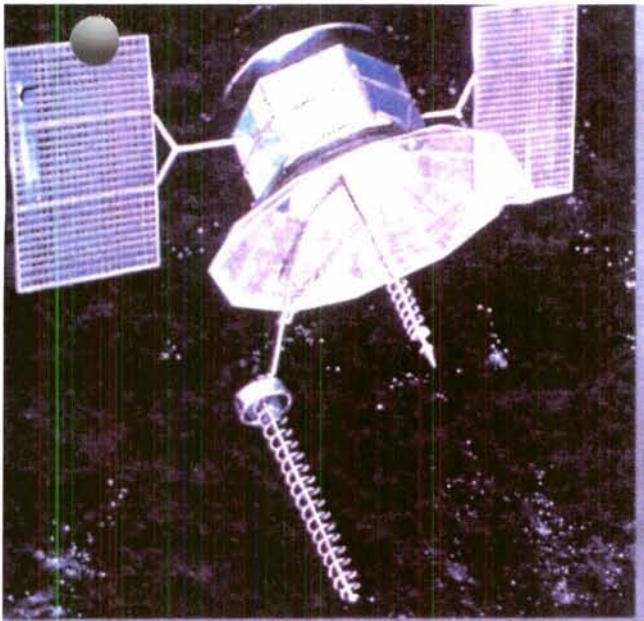
EXCELLENCE
IN ELECTRONICS

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**GROUND
COMMUNICATIONS - ELECTRONICS
INTERSERVICING**

**A CONSOLIDATION PROPOSAL
FOR
TOBYHANNA ARMY DEPOT**

31 MARCH 1995



INTERSERVICING - MAINTENANCE PERFORMED BY
ONE SERVICE TO SUPPORT ANOTHER

INTERSERVICING PRODUCES...

- **COMMODITY-ORIENTED "CENTER OF EXCELLENCE "**
- **SAVINGS**
 - **ELIMINATE REDUNDANCIES**
 - **ECONOMIES OF SCALE**
 - **REDUCE EXCESS CAPACITY**

INTERSERVICING

- **BRAC 93 ANALYSIS**
 - ISSUE FOR FURTHER CONSIDERATION
 - CHALLENGE TO DOD
 - EXECUTE RECOMMENDATIONS IN 1995
- **OSD EXPECTATIONS**
 - CROSS-SERVICE REALIGNMENTS
 - ELIMINATE EXCESS CAPACITY



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

GROUND COMMUNICATIONS - ELECTRONICS EQUIPMENT

**BATTLEFIELD AUTOMATION
SYSTEMS**

**SURVEILLANCE/
IFF/ WEATHER
RADAR**

**WIRE
COMMUNICATIONS**

**GROUND
SATELLITE
SYSTEMS**

**AIR
TRAFFIC CONTROL
RADAR**

**GROUND
COMMUNICATIONS**

**COMSEC/
CRYPTO**

**TELEPHONE/
TELETYPE**

**ELECTRONIC
WARFARE**

INTEL

ELECTRO-OPTIC

**GROUND
RADAR**

SENSORS

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

GROUND COMMUNICATIONS - ELECTRONICS

THE ARMY'S ROLE

- **PREDOMINANT USER - ARMY**
 - INTEGRAL TO ALL ARMY SYSTEMS
 - DIGITIZED BATTLEFIELD
- **PRIMARY MANAGER - ARMY**
 - CECOM
 - ROME LABS TO FT. MONMOUTH
- **MAJOR MAINTAINER - ARMY**
 - TOBYHANNA ARMY DEPOT
 - DEDICATED TO C-E

BRAC 91

PUBLIC TO PUBLIC COMPETITION WORKLOAD SACRAMENTO ARMY DEPOT

COMPETITION GROUP	COMPETITORS	AWARD DATE	WINNER/\$M
Airborne Electronics	TOAD vs SM-ALC	15 Jan 93	TOAD/\$4.6
Bradley Fighting Veh	RRAD vs SM-ALC	2 Aug 93	SM-ALC/\$3.7
Electro Optics	ANAD vs SM-ALC	3 Nov 93	SM-ALC/\$50
Radar	LEAD vs SM-ALC	2 Aug 93	SM-ALC/\$3.5
Radio	TOAD vs SM-ALC	30 Sept 93	TOAD/\$5.0
Gyro/Indicators	CCAD vs SM-ALC	1 Oct 93	SM-ALC/\$1.2
Intelligence & Elnc Warfare	TOAD vs SM-ALC	17 Nov 93	TOAD/\$7.4
TMDE/Radiac	TOAD vs SM-ALC	17 Dec 93	SM-ALC/\$1.2
Wire/DATA COM	TOAD vs SM-ALC	17 Dec 93	TOAD/\$1.4



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

WORKLOAD TRANSITIONS

- **MANAGEABLE**
 - **HI-TECH CAPABILITY**
 - **SKILLS IN PLACE**
- **LOW COST**
 - **MINIMAL INVESTMENT**
 - **FACILITIES, TEST EQUIPMENT AVAILABLE**
- **TRANSPARENT TO THE CUSTOMER**
 - **COMSEC**
 - **SAAD AVIONICS - INDICATORS**
 - **SAAD IEW - TRAILBLAZER**

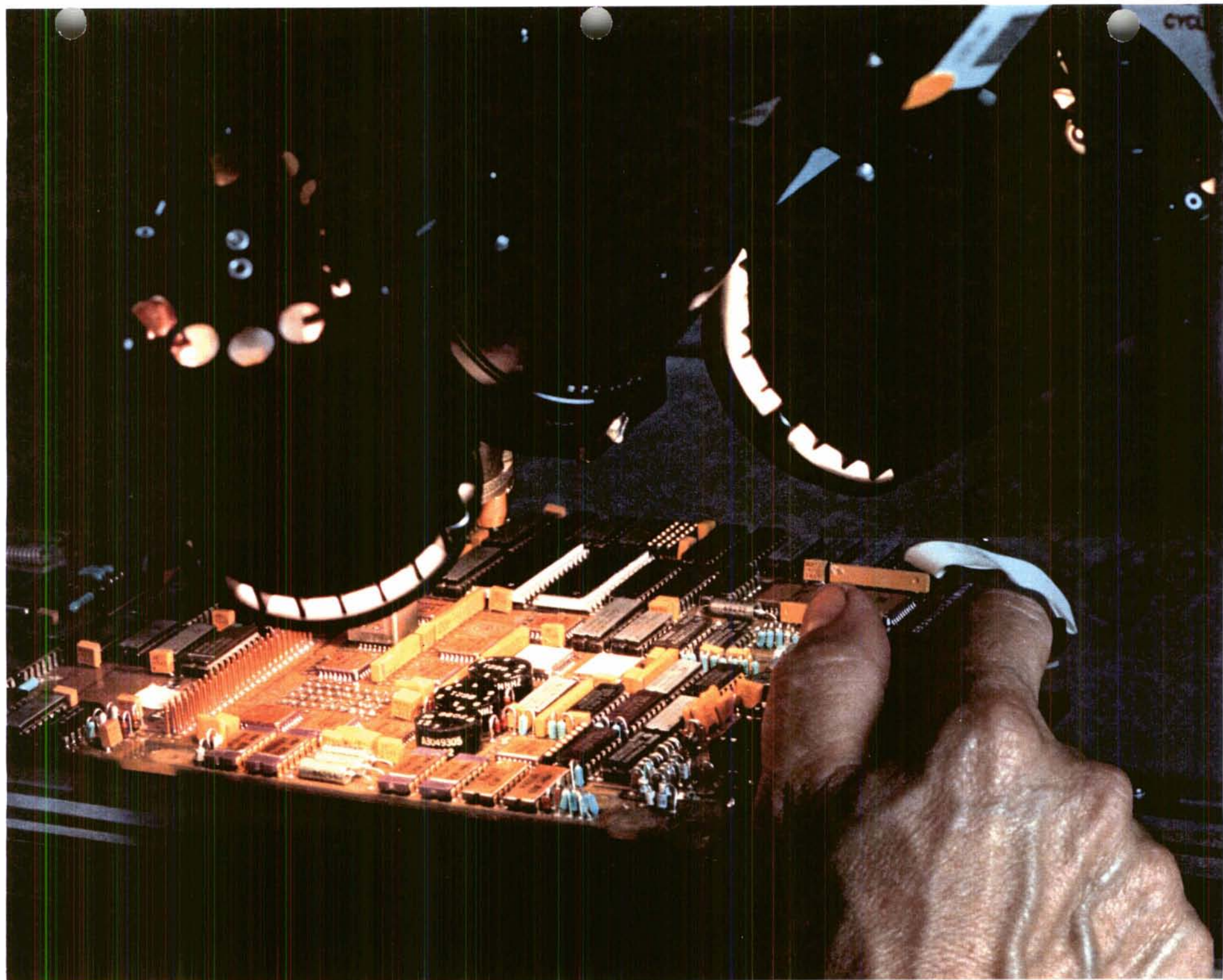
COST EFFECTIVE

- ✓ **TOBYHANNA IS A SINGLE COMMODITY DEPOT**
- ✓ **HIGH EMPHASIS ON TECHNICAL SKILLS/TRAINING**
- ✓ **HIGH UTILIZATION OF AUTOMATIC TEST EQUIPMENT**
- ✓ **FLEXIBILITY TO RECONFIGURE SHOPS**
- ✓ **FACILITY UNDER ONE ROOF**
- ✓ **ABILITY TO MOVE PERSONNEL BETWEEN COST CENTERS**



ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**



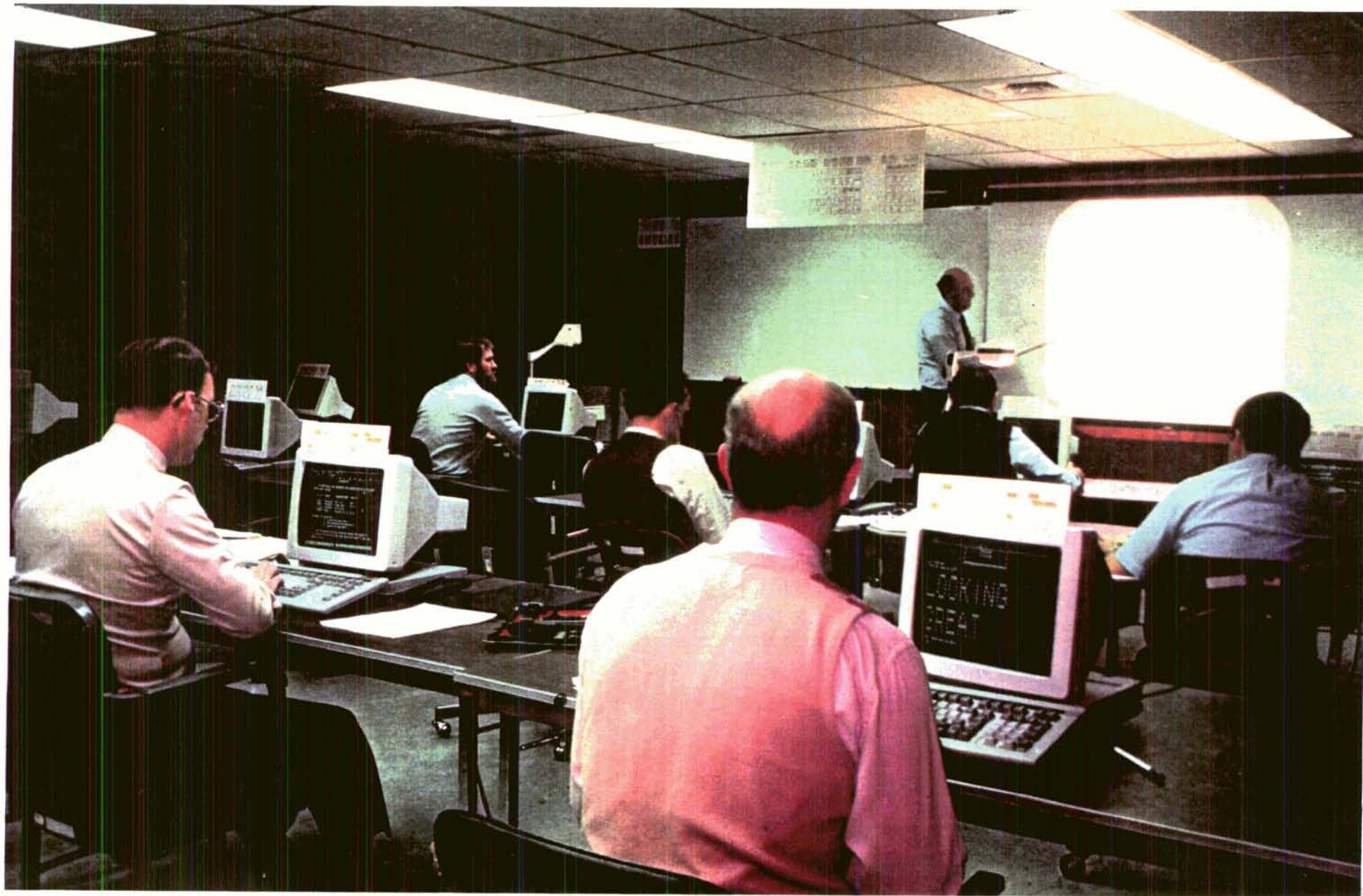
WORK FORCE

- **1300 ELECTRONIC SPECIALISTS**
- **HIGHLY TRAINED**
 - TOBY TECH
 - APPRENTICESHIP PROGRAM
 - GRADUATE LEVEL STUDIES
- **EXCELLENT WORK ETHIC**
 - HIGH LABOR YIELDS
 - HISTORY OF PRICE REDUCTIONS



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS



UNIQUE FACILITIES

- ENVIRONMENTAL STRESS SCREENING
- SATELLITE MISSION
- COMMUNICATIONS SECURITY
- AUTOMATED TEST EQUIPMENT
- HIGH TECH RESERVE TRAINING - ELECTRONICS

DEDICATED
TO
ELECTRONIC
TECHNOLOGIES



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS



TOBYHANNA ARMY DEPOT MAINTENANCE CAPACITY

FY95

PREVIOUS PROFILE	4.6 MMHRS
CURRENT PROFILE (CP)	5.6 MMHRS
MAXIMUM AVAILABLE (MA)	7.6 MMHRS



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

WORKLOAD UTILIZATION ANALYSIS

FY99

OPTIMISTIC PROJECTIONS

TOAD	3.7 MMHRS
MISSILES	1.5 MMHRS
GCE	1.4 MMHRS

UTILIZATION

TOAD AND MISSILES (CP)	93%
TOAD AND GCE (CP)	91%
TOAD, MISSILES AND GCE (MA) ...	87%



ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

GROUND COMMUNICATIONS - ELECTRONICS CONSOLIDATION AT TOBYHANNA

- 1991 DDMC GROUND COMMUNICATIONS AND ELECTRONICS
DEPOT MAINTENANCE STUDY
- 1992 JCS MAINTENANCE CONSOLIDATION STUDY
(WENT STUDY)
- 1993 BRAC 93 STAFF INDEPENDENT STUDY
- 1994 AMSAA PRELIMINARY INTERSERVICE STUDY
- 1995 COOPERS-LYBRAND STUDY

**OPTIMAL
LOCATION**

**SAVINGS
VALIDATED**

**DOD - TRUE
CENTER OF
EXCELLENCE**

ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

ADVANTAGES

- **TOBYHANNA IS THE ONLY DEPOT WITH . . .**
 - CAPACITY TO ASSUME THE DOD WORKLOAD
 - EXPERTISE TO SUPPORT ALL DOD GROUND COMMUNICATIONS-ELECTRONICS SYSTEMS
- **TOBYHANNA IS THE MOST COST EFFECTIVE**
- **TOBYHANNA SHOULD BE THE DOD CENTER OF EXCELLENCE FOR GCE DEPOT MAINTENANCE**

TOBYHANNA

DOD ELECTRONICS CENTER

TACTICAL/STRATEGIC
ELECTRONICS REPAIR
ARMY COMSEC
SATELLITE COMM
CENTER
THE ELECTRONIC
ASSEMBLAGE MFGR
ELECTRONICS WEAPONS
SYSTEMS INTEGRATOR
PREMIER DOD
PROTOTYPER
SYSTEMS DOWNSIZING
EXPERT
FCIM SITE
ATE/TPS CENTER

CURRENT
FUNCTIONS

VISION

ATTRIBUTES

HIGH TECH TRNG CTR
DOD ELECTRONICS
REPAIR CENTER
DOD COMSEC CENTER
SOF SUPPORT
CENTER
DOD FCIM SITE
FOR ELECTRONICS
TECHNOLOGY
INSERTION
ELECTRONIC LABS
MFG CENTER
CALS CENTER
ARPA'S APPLICATION
SITE

- CAPACITY TO ASSUME DOD WORKLOAD
- LOWEST COST
- GREATEST PRODUCTIVITY
- TQM PIONEER
- ENVIRONMENTALLY SOUND
- EXPANDABILITY
- STATE-OF-THE-ART FACILITY
- STRATEGIC LOCATION
- HIGH TECH, SKILLED WORK FORCE/HIGH QUALITY OF LIFE
- LARGEST ENGINEERING BASE
- MOBILIZATION CAPABILITY
- LARGE LOCAL TECHNICAL LABOR POOL

TOBYHANNA

ARMY DEPOT

EXCELLENCE
IN ELECTRONICS

TOBYHANNA ARMY DEPOT



VISION

**THE COMMUNICATIONS - ELECTRONICS
LOGISTICS CENTER OF CHOICE
INTO THE 21st CENTURY**



ARMY DEPOT

**EXCELLENCE
IN ELECTRONICS**

MEMORANDUM FOR THE RECORD

Date: May 4, 1995

Subject: Telephone conversation with Hill AFB officials concerning number of personnel involved in the storage and surveillance of tactical missiles.

Personnel involved:

Ms. Jeannie Hathenbruck, Chief Logistics Operations, Ogden ALC Armament Division

Mr Woody Knobles, Engineer, Logistics Operations, Armament Division, Ogden ALC

Information provided:

1. Many Air Force missiles are stored in the field by operating units. The field units perform periodic tests on the stored missiles. If a potential problem is detected on a Maverick missile, the uprounded weapon is sent from the field unit to Hill, where additional tests, disassembly and any necessary repairs are accomplished. Hill currently employs 11 personnel who test, disassemble and certify the serviceability of Maverick missiles. If the tactical missile maintenance work is transferred to Letterkenny, the guidance and control section would be sent to Letterkenny and then returned to Hill for uprounding (ie assembly). Work on uprounded munitions is accomplished within building 2026. 17,280 direct labor hours expended in 1994.
2. Some (uncertain what portion) Maverick missiles are stored on Hill. The Ogden center is the only activity capable of disassembling Maverick missiles, for the Air Force. The weapons generally are not stored adjacent to the disassembly and repair sites.
3. Other Hill employees who perform missile related work in addition to the 76 persons who work on Maverick and Sidewinder guidance and control sections include:
 - 39 people who work on Maverick launchers. About 51,937 direct labor hours expended in 1994.
 - 54 people who work on strategic missile launchers. About 87,000 direct labor hours expended in 1994.
4. Hill officials are concerned about the Army's possible denial of overflow storage space if the Commission should decide to transfer missile work to Ogden. It was suggested that we might want to contact the Joint Ordnance Commanders Group to get a briefing on the current storage locations. Although the specific quantities and locations of stored missiles is classified, the joint group should be able to give us some insight as to the reasonableness of any possible changes to the current storage, testing or maintenance assignments. The joint group should also be able to discuss the depot storage tiering process and how it might impact on the Hill community's capacity to absorb more work in the storage, testing and uprounding of Dod's missile inventories.



DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION
1700 NORTH MOORE STREET SUITE 1425
ARLINGTON, VA 22209
703-696-0504

TELECOPIER/FACSIMILE TRANSMITTAL COVER SHEET

PLEASE DELIVER IMMEDIATELY TO: Col Powell

FAX NUMBER: _____ TELEPHONE NUMBER _____

DAY: _____ DATE: _____ TIME: _____

FROM: Glenn Knoepfle

_____ of the Review & Analysis section/DBCRC

TELEPHONE NUMBER of SENDER: 703-696-0504 FAX NUMBER: 703-696-0550

NUMBER OF PAGES (including cover): 1

COMMENTS:

The Hill AFB proposal to assume
the missile maintenance workload from Letterkenny
assumed that tactical missile storage
currently assigned to Letterkenny could be
transferred to ① Hill AFB, ② OASIS, and ③
Tooe Army Depot.

IF YOU HAVE TROUBLE RECEIVING THIS FAX
PLEASE CALL 703-696-0504.

Document Separator

THE DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION

EXECUTIVE CORRESPONDENCE TRACKING SYSTEM (ECTS) # 950619-8

FROM: BENNETT, ROBERT F.	TO: DIXON
TITLE: (UT)	TITLE: CHAIRMAN
ORGANIZATION: U.S. CONGRESS	ORGANIZATION: OBCRC
INSTALLATION (S) DISCUSSED: HILL AFB	

OFFICE OF THE CHAIRMAN	FYI	ACTION	INIT	COMMISSION MEMBERS	FYI	ACTION	INIT
CHAIRMAN DIXON				COMMISSIONER CORNELLA	✓		
STAFF DIRECTOR	✓			COMMISSIONER COX	✓		
EXECUTIVE DIRECTOR	✓			COMMISSIONER DAVIS	✓		
GENERAL COUNSEL	✓			COMMISSIONER KLING	✓		
MILITARY EXECUTIVE				COMMISSIONER MONTOYA	✓		
				COMMISSIONER ROBLES	✓		
DIR./CONGRESSIONAL LIAISON		Ⓢ		COMMISSIONER STEELE	✓		
DIR./COMMUNICATIONS				REVIEW AND ANALYSIS			
				DIRECTOR OF R & A	✓		
EXECUTIVE SECRETARIAT				ARMY TEAM LEADER			
				NAVY TEAM LEADER			
DIRECTOR OF ADMINISTRATION				AIR FORCE TEAM LEADER	✓		
CHIEF FINANCIAL OFFICER				INTERAGENCY TEAM LEADER	✓		
DIRECTOR OF TRAVEL				CROSS SERVICE TEAM LEADER		X	
DIR./INFORMATION SERVICES							

TYPE OF ACTION REQUIRED

<input checked="" type="checkbox"/> Prepare Reply for Chairman's Signature	<input type="checkbox"/> Prepare Reply for Commissioner's Signature
<input type="checkbox"/> Prepare Reply for Staff Director's Signature	<input type="checkbox"/> Prepare Direct Response
<input checked="" type="checkbox"/> ACTION: Offer Comments and/or Suggestions	<input checked="" type="checkbox"/> FYI

Subject/Remarks:

FORWARDING POINT PAPER DISCUSSING PROPOSAL
TO CONSOLIDATE TACTICAL MISSILE DEPOT WORKLOAD
AT HILL AFB

Due Date: 950621	Routing Date: 950619	Date Originated: 950616	Mail Date:
------------------	----------------------	-------------------------	------------

ROBERT F. BENNETT
UTAH

COMMITTEES:
APPROPRIATIONS
BANKING, HOUSING, AND
URBAN AFFAIRS
JOINT ECONOMIC
SMALL BUSINESS

United States Senate

WASHINGTON, DC 20510-4403
(202) 224-5444

June 16, 1995

The Honorable Alan J. Dixon, Chairman
Defense Base Closure and
Realignment Commission
1700 North Moore Street, Suite 1425
Arlington, VA 22209

Dear Chairman Dixon:

Thank you for taking the time to break away from the hearings Tuesday. I appreciated the chance to meet with you personally. I know Senator Hatch feels the same way.

Tuesday, I referenced a proposal to consolidate tactical missile depot workload at Hill AFB. To date, the discussion appears focused on the issue of storage and whether missiles must be stored at the depot doing the maintenance. Current policy requires only enough storage at maintenance depots to temporarily hold items being processed for repair. The decision where to store tactical missiles lies with each service. The attached point paper discusses this and shows where current storage locations are for each service. A strong argument can be made that this broad variety of storage sites is desirable.

Storage is clouding the real point, however. In the recommendations before you, the technical portion of this workload, the guidance and control maintenance, will be moved to a location that is not currently doing this type of work. Hill AFB is now doing the majority of all guidance and control work for the Department of Defense. It has the capacity in existing facilities to do all of it. If there are savings to be made by consolidation of tactical missile work, look at consolidating the guidance and control and launcher maintenance to a location that is already doing it for ICBM's and for air launched missiles. That location is Hill AFB.

I urge you and your colleagues not to be distracted by the storage question. Regardless of the storage decision, it appears the greatest cost-savings will be realized by consolidating guidance and control work, as well as launcher work, at Hill. Attached point papers cover the COBRA analysis for various options.

STATE OFFICES

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SALT LAKE CITY, UT 84138-1188
(801) 524-5933
- FEDERAL BUILDING
324 25TH STREET, SUITE 1410
OGDEN, UT 84401-2310
(801) 625-5676
- OLD COURT HOUSE BUILDING
51 SOUTH UNIVERSITY AVENUE, SUITE 310
PROVO, UT 84601-4424
(801) 379-2525
- FEDERAL BUILDING
196 EAST TABERNACLE, SUITE 24
ST. GEORGE, UT 84770-3474
(801) 628-5514
- FEDERAL BUILDING
82 NORTH 100 EAST, SUITE 200
CEDAR CITY, UT 84720-2686
(801) 365-1335

Please refer to this number
when responding 950619-8

Chairman Dixon

June 16, 1995

Page two

Thank you for reviewing this information, especially at this late date. As I have mentioned before, I very much appreciate the attention and consideration that I have received from you and the other Members of the Commission throughout this process.

Sincerely,



Robert F. Bennett
United States Senator

RFB:cxl

Enclosures

cc: Rebecca Cox

**Point Paper
On
Missile Storage Facilities**

- **Issue:** "Do the missile storage facilities need to be located adjacent to the depot?"
- **Discussion:** No. Missile storage for all tactical missiles is not required adjacent to the depot. The maintenance depot only requires enough storage to temporarily hold items being processed for repair. An overview of the storage policies and philosophy is provide below.
- **Policy:** The decision lies with each service where their tactical missiles are stored (Atch 1)
 - USAF prepositions 75-90% of their missiles with the operational users, residual missiles are stored at various CONUS locations
 - Navy prepositions most with the users (aboard ship) and the remaining at two coastal depots for quick replenishment of ships
 - Army currently stores their tactical missiles with users also, and residual missiles at three locations with collocated Government Owned Contractor Operated (GOCO) facilities
- **Storage of all tactical missiles in one location is not wise for several reasons:**
 - **Strategic:**
 - Avoid having a natural disaster or sabotage temporarily impact quick outloading capability in times of crisis, particularly days 0-30
 - Ability to project power to several global locations quickly
 - **Logistic:**
 - Outloading weapons of choice (tactical missiles) from one location will be impossible in times of crisis
 - DoD Ammunition Stockpile Optimization Plan: the tiering concept was created to optimize asset location to meet regional training mission and outload requirements (Atch 2)
 - Storage locations setup to perform field level testing
 - Only failed components sent to repair facility
 - **Storage at the depot site should be enough to provide for smooth depot maintenance throughput**
 - Need only temporary storage for receiving and shipping of missile explosive components and limited all-up-rounding
 - Explosive 1.4 components do not need igloos, licensed warehouses only
 - **Future weapons of choice will be precision guided to minimize collateral damage**
 - Precision guided storage requirement expected to increase in the future
 - Single storage site possibilities unlikely
- **Conclusion:** The only collocated storage required is that needed to meet the negotiated repair requirement. Collocated storage could severely impede out.load capabilities in future wartime missions.

Tactical Missile All-Up Round and Storage Location as of 27 Jan 1995.

Service	Missile System Name	All-Up Round	Storage
Navy	Standard	Naval Weapon Station (NWS) Seal Beach and NWS Fallbrook	NWS Seal Beach / Yorktown / Fallbrook
Navy	Sidewinder	NWS Yorktown and NWS Fallbrook	NWS Yorktown and NWS Fallbrook
Navy	Phoenix	NWS Yorktown and NWS Fallbrook	NSY Charleston
Navy	Sparrow	NWS Yorktown and NWS Fallbrook	NWS Yorktown / Fallbrook NSY Charleston
Navy	HARM	NWS Yorktown and NWS Fallbrook	NWS Yorktown and NWS Fallbrook
Navy	Maverick	Hill AFB	Red River Army Depot (RRAD) / Tooele AD / Hill AFB / NWS Yorktown and Fallbrook
Navy	AMRAAM	NWS Yorktown and NWS Fallbrook	NWS Yorktown / Fallbrook NSY Charleston
Army	Sparrow	Letterkenny Army Depot (LEAD)	LEAD
Army	Sidewinder	LEAD	LEAD
Army	ATACMS	LEAD	LEAD
Army	Hellfire	Anniston AD (GOCO)	Anniston AD
Army	*TOW	N/A	Anniston AD
Army	*Dragon	N/A	Anniston AD
Army	*Shillelagh	N/A	Anniston AD
Army	HAWK	RRAD (GOCO)	RRAD
Army	Stinger	Hughes Contractor	RRAD
Army	PATRIOT	RRAD (GOCO)	RRAD

* No All-Up Round or component maintenance.

Note: Does not include missiles in forward / user storage locations.

Atch 1

**TACTICAL MISSILE CONSOLIDATION
COBRA DATA
14 June 1995**

Currently Hill AFB repairs tactical missile guidance and control units and this workload would not need to be transferred in any realignment scenario (53% of DoD organic guidance and control workload). The Department of Army conducted a BRAC study that indicated the costs of moving tactical missile guidance and control repair from Letterkenny Army Depot (LEAD) to Tobyhanna Army Depot (TOAD) was more cost effective than moving this function to Hill Air Force Base (AFB). Since Hill AFB already has a large portion of this workload, which would need to be transferred along with LEAD workload, it is not possible to move to TOAD more cost effectively than to Hill AFB. In the Army's COBRA data, most one time costs for moving to TOAD have never been included (i.e. equipment movement, inventory movement, training, first article tests, facility modifications, MILCON, etc.)

Four scenarios for tactical missile transfer have been provided which pertain to discussions between Hill AFB representatives and BRAC commissioners/staff. The COBRA data provides the transfer scenario for LEAD to Hill AFB, the personnel scenario column includes the baseline number personnel, the one time costs identified in the COBRA model (including training, equipment movement, facility modification, etc.), return on investment (ROI) year, and net present value of the cash flows from the beginning of the scenario until the year 2015. The personnel baseline for COBRA modeling is provided which uses FY99 as the baseline year and 94 percent of the personnel are willing to move (comparable with the Army COBRA data and standard factors).

SCENARIO A: TOTAL TACTICAL MISSILE TRANSFER COBRA DATA

TRANSFER FROM	TO	PERSONNEL SCENARIO	1-TIME COST (000)	ROI YEAR	NPV 2015 (000)
1 - LEAD	Hill AFB	ARMY (94% Move, 923 PE FY99)	\$95,069	Immediate	(\$724,520)
1 - LEAD	Hill AFB	ARMY (30% Move, 923 PE FY99)	\$90,453	Immediate	(\$729,099)

Scenario A, a total tactical missile transfer to Hill AFB has two COBRA scenarios.

- Scenario A1 is a Hill AFB scenario uses the Army's manpower baseline and personnel movement standard factor. Explosive storage MILCON is not included. Other realignments are included such as depot movements to Anniston Army Depot (ANAD).
- Scenario A2 is a Hill AFB scenario uses the Army's manpower baseline and personnel movement standard factor that more closely compares to historical realignments. Explosive storage MILCON is not included. Other realignments are included such as depot movements to Anniston Army Depot (ANAD).

NOTE: The Army's proposal disperses tactical missile repair to LEAD, TOAD, and ANAD. A total consolidation at TOAD is not possible or feasible for developing a Army proposal comparable to Hill AFB's proposal. The Army projected a requirement for 1M square feet of explosive storage to consolidate at Hill AFB. The explosive storage requirement is overstated, is not required, and was removed from A1 and A2 (reference Hill AFB explosive storage point paper).

SCENARIO B: GUIDANCE & CONTROL (G&C) WITH REMOVABLE LAUNCHERS
(Without Patriot and Hawk) COBRA DATA

TRANSFER FROM	TO	PERSONNEL SCENARIO	1-TIME COST (000)	ROI YEAR	NPV 2015 (000)
LEAD	Hill AFB	Hill AFB (94% Move, 226 PE FY99)	\$20,482	Immediate	(\$235,782)

Scenario B, guidance and control with launchers is provided as a result of discussions with BRAC personnel. Missile launchers are not always part of guidance and control systems and are not discussed separately in the Army scenario, therefore, are assumed to be included as they were in the 1993 BRAC decision. Again this scenario excludes the Patriot and Hawk systems, all-up-round workloads, and the Maverick/Sidewinder personnel and costs.

SCENARIO C: GUIDANCE AND CONTROL (G&C) TRANSFER COBRA DATA

TRANSFER FROM	TO	PERSONNEL SCENARIO	1-TIME COST (000)	ROI YEAR	NPV 2015 (000)
LEAD	Hill AFB	Hill AFB (94% Move, 14 PE FY99)	\$14,483	Immediate	(\$224,363)

Scenario C, guidance and control transfer represents what Hill AFB understands as airborne launched missiles which include Maverick, Sidewinder, Sparrow, and Phoenix. Again, Maverick and Sidewinder personnel and costs are excluded since they are at Hill AFB. Other systems such as AMRAAM, Hellfire, and Harm are currently repaired by contractors. When these systems become organically repaired Hill AFB would be the depot.

SCENARIO D: MAVERICK AND SIDEWINDER (G&C) TRANSFER (COBRA NOT USED)

TRANSFER FROM	TO	PERSONNEL SCENARIO	1-TIME COST (000)	ROI YEAR	NPV 2015 (000)
LEAD	Hill AFB	Hill AFB (All personnel are currently at Ogden)	(\$12,000)	Immediate	N/A

Scenario D shows the Maverick and Sidewinder are currently at Hill AFB.

Document Separator

Hill AFB

Tactical Missile Repair



Jeannie Hathenbruck

28 April 1995

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Hill AFB

Overview

Background

Alternative Solution

Full Service Support

Transition Plan

Conclusions

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Background

DoD Recommended Closing Letterkenny
(LEAD) in 1993

BRAC 93

Consolidated Tactical Missiles at LEAD

DMRD 908 "Tactical Missile Study"

Good Decision to Consolidate

Fundamentals Driving Decision Remain Valid

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Hill AFB

Background

Reduction in Labor Hours

Several Systems Now Excluded

Contractor Support Issues

Retire In-Place

Deep Storage

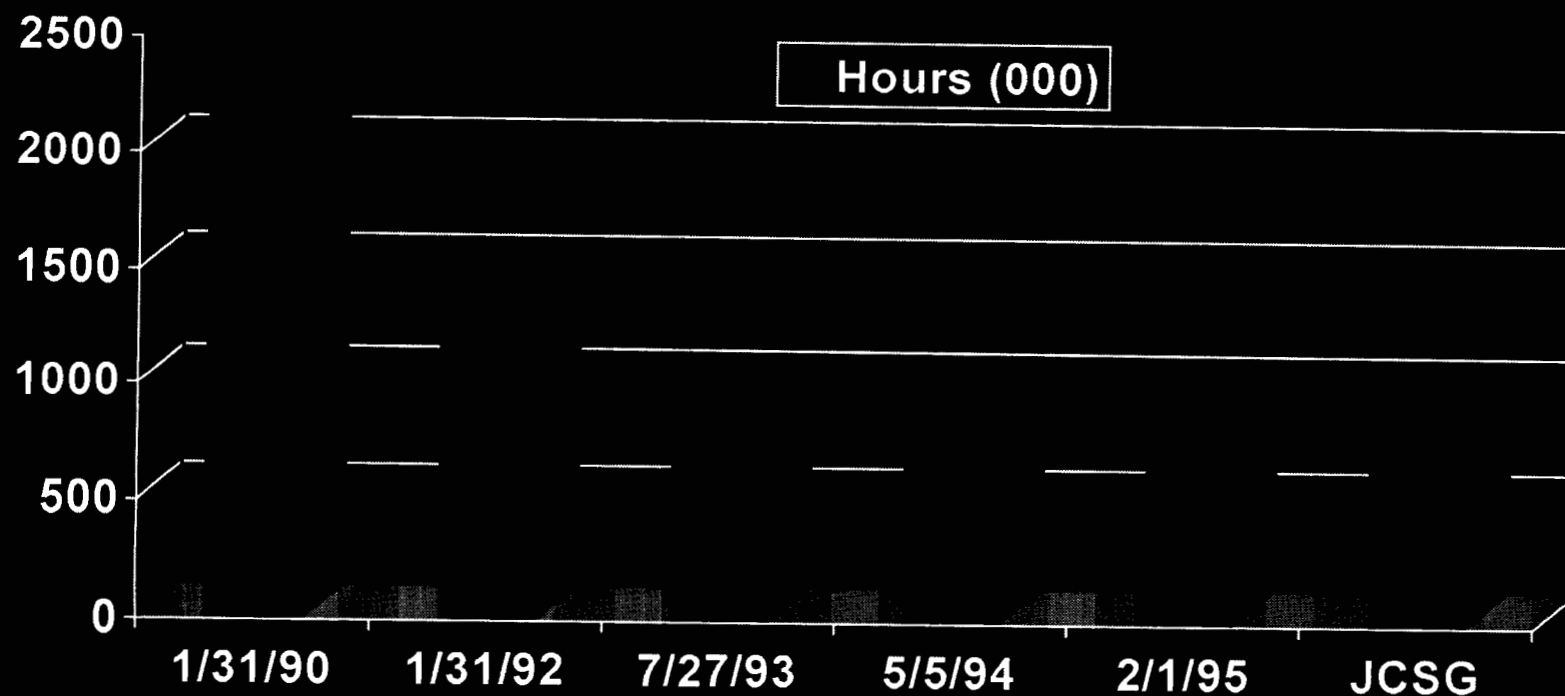
Service Retained

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Background

Tactical Missiles Consolidation Workload Changes (LEAD)



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copy of 5/18
copy of 6/7 hours
1995, new 5/18/1

Hill AFB

DoD Tactical Missile Workload

Present Tactical Missile Workload

<u>Depot</u>	<u>DL H (000)</u>
FY99 Projected Workload	677

Additional Workload

Red River (Vehicle and Launchers)	59
Crane (Fuzes)	38
Tobyhanna (Missile Components)	58
<u>Black World</u>	<u>13</u>
Subtotal	168

Total	845
--------------	------------

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Background

Army Recommended Disestablishment of
LEAD Depot

1995 DoD Recommendations

Guidance & Control to Tobyhanna AD

Guidance & Control Plus Towed and Self-
Propelled Vehicles to Anniston AD

Hawk Missile System to Barstow USMC Depot

AUR & Storage For Four (4) Systems Remain at
Letterkenny AD

Nullifies 93 BRAC Consolidation Decision

LEAD is Army Tier II Depot, Will Not Be
USAF Missile Storage Site

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*T. J. I. [unclear]
T. J. I. [unclear]
T. J. I. [unclear]*

*Power [unclear] [unclear]
[unclear]*

*Land [unclear] [unclear]
[unclear] [unclear]*

Hill AFB

Alternative Solution

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Alternative Solution

Hill AFB Provides a Viable Alternative

35 Years of Missile Experience

USAF Consolidated Workload at Hill AFB 1970's

USAF Missile Investment at Hill Exceeds \$1B

Significant Amount of DoD Organic Tactical
Missile Workload

- 53% GCS
- 44% DoD Missiles
- 150,000 DLH Launcher and Vehicle Workload

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DoD Tactical Missile Guidance and Control Workload (000 DLH)*

Total <i>not included in launcher</i>	Hill Current	LEAD Current	Future (Contract)
229.6	¹⁴⁸ 121.8 <i>100% Standard</i>	18.8	89.0 <i>HARM ARBAR</i>
100%	53% <i>100% 100% 100%</i>	8%	39%

*Hours are Based on Projected FY99 Workload

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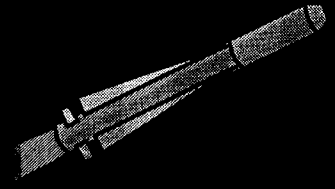
*8-15 space
Available 350,000
square feet*

148

*80 Guidance & Control
68 Support Effort, Air Force
Launchers*

ARAR

Why Hill AFB?



Total Organic Missile Workload
Vehicles, Launchers, GCS, AUR, Launch Control

All Repair

OO-ALC Repair

Assets	Direct Labor Hrs (K)	Direct Labor Hrs (K)	%
USAF	730.5	717.5	98
DoD	1687	745.9	44

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Alternative Solution (Cont)

Capability Exists to Consolidate DoD Tactical Missile Workload

- Support Equipment
- GCS
- AUR
- Launchers
- Vehicles

Full Service Missile Support
Established Infrastructure

Hill AFB Designated Tier I Depot

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Hill AFB

Hill AFB, A TIER I Base

Rated Tier I For Installation Military Value By
USAF

Rated Tier I For Depot Military Value By
USAF

Rated Tier I USAF Depot by DoD JCSG/DM

The Only AF Depot So Rated

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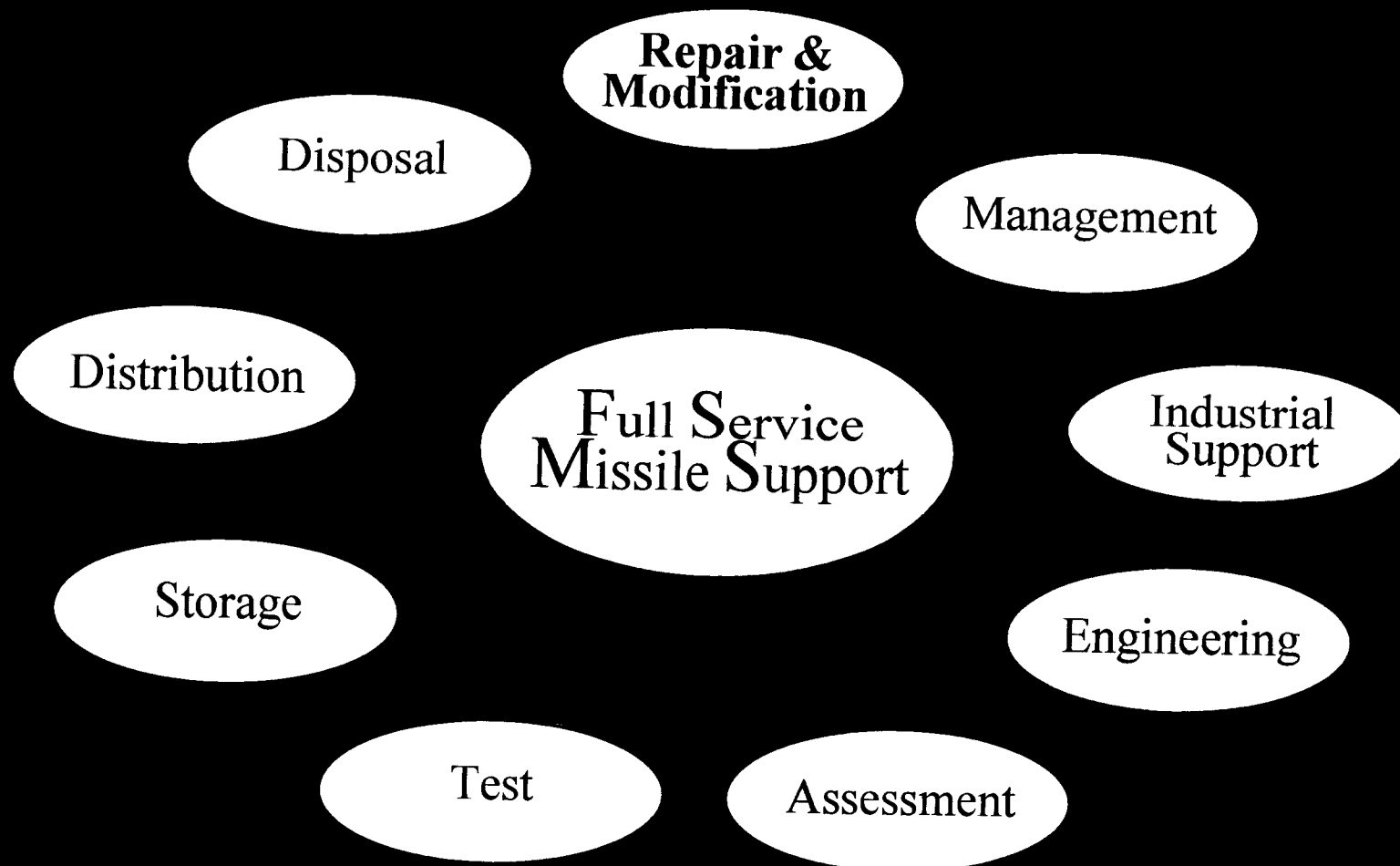
Hill AFB

Full Service Support

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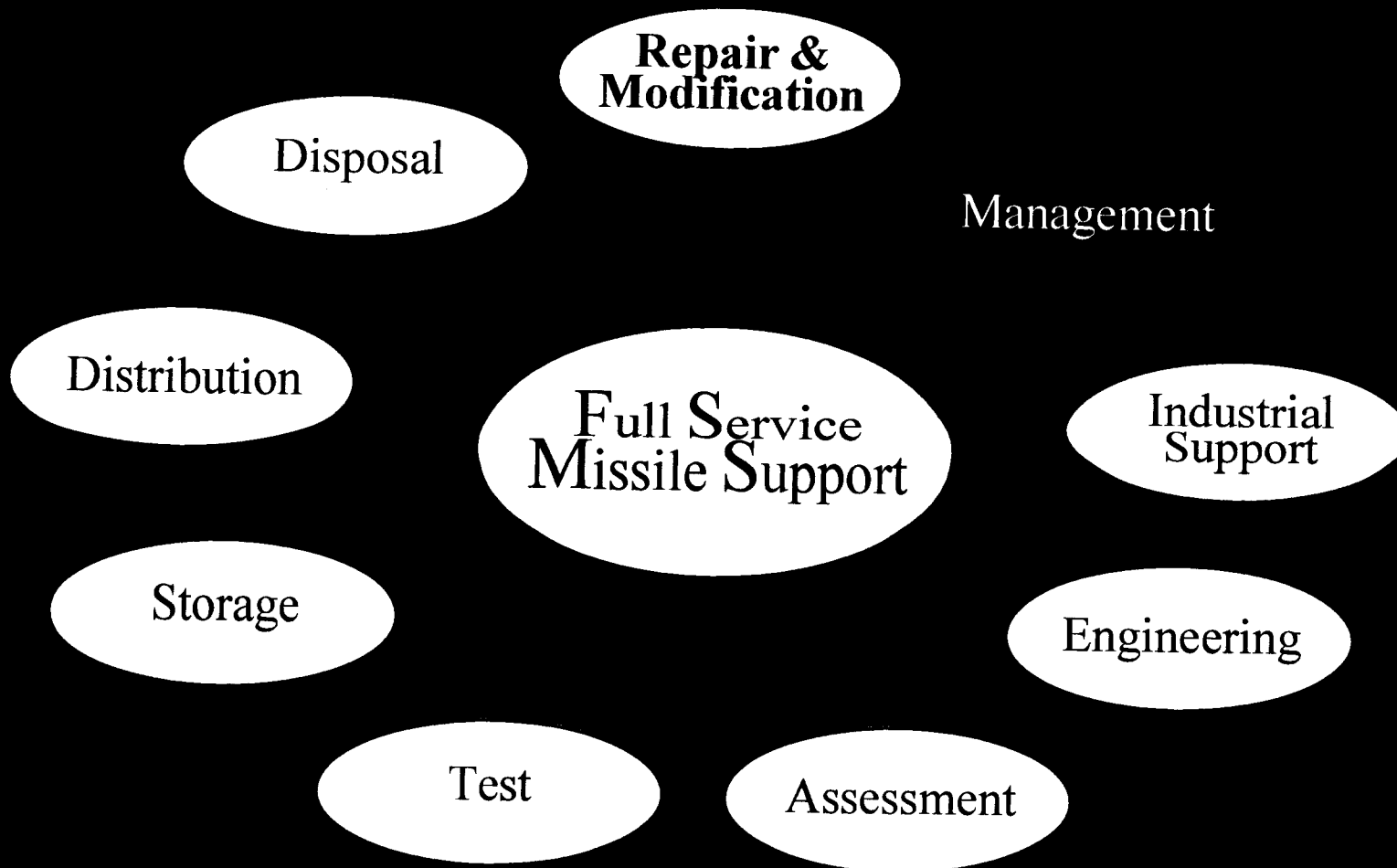
Hill AFB Missile Support Capability



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Hill AFB

Hill AFB Missile Support Capability



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Management

System Acquisition

“Cradle to Grave” System Management

Integrated Weapon System Management (IWSM)

Product Group Manager (PGM) for all Air-to-Ground Munitions

Specialized Management

Silo-Based ICBM System Program Office

Maverick System Program Office

Missile Component and Container Managers

System, Supply, and Field Support

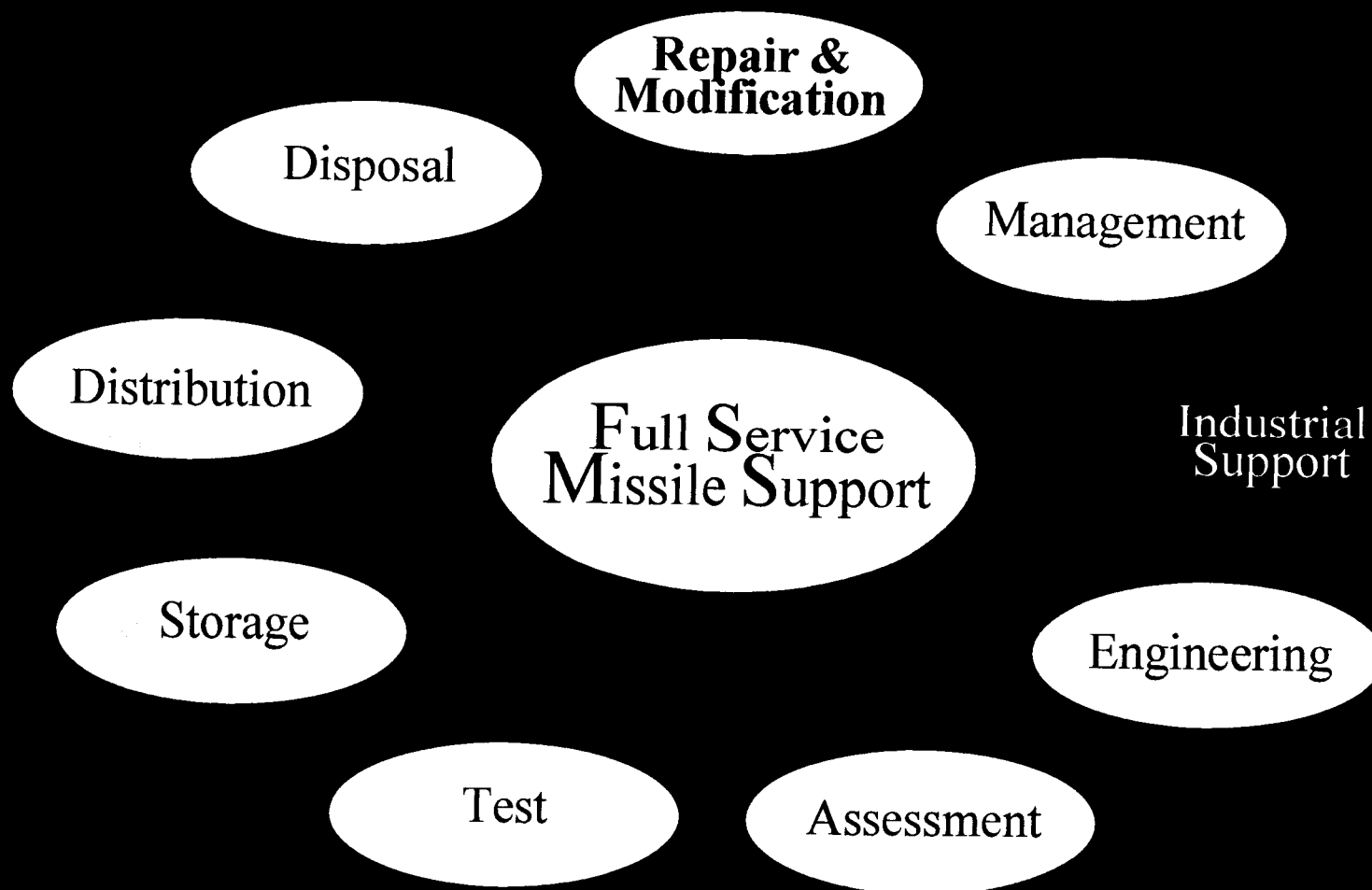
Explosives Experts

End Item and Spares Procurement

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Hill AFB

Hill AFB Missile Support Capability



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Industrial Support

Hill AFB Provides Extensive Infrastructure Capabilities

Optical Refurbishment

Radar Overhaul/Repair

Printed Circuit Board Manufacturing

Electrical Harness Repair

Investment Casting

Hazardous Waste Management System

Integrating Tomorrow's Technology...Today

Hill AFB

Industrial Support

Hill AFB Provides Extensive Infrastructure (Cont)

Precision Measurement Equipment Lab

Physical Science Lab

- State and EPA Certified

Hydraulics/Electronics Support

Machine Shop

Automated Supply Distribution System

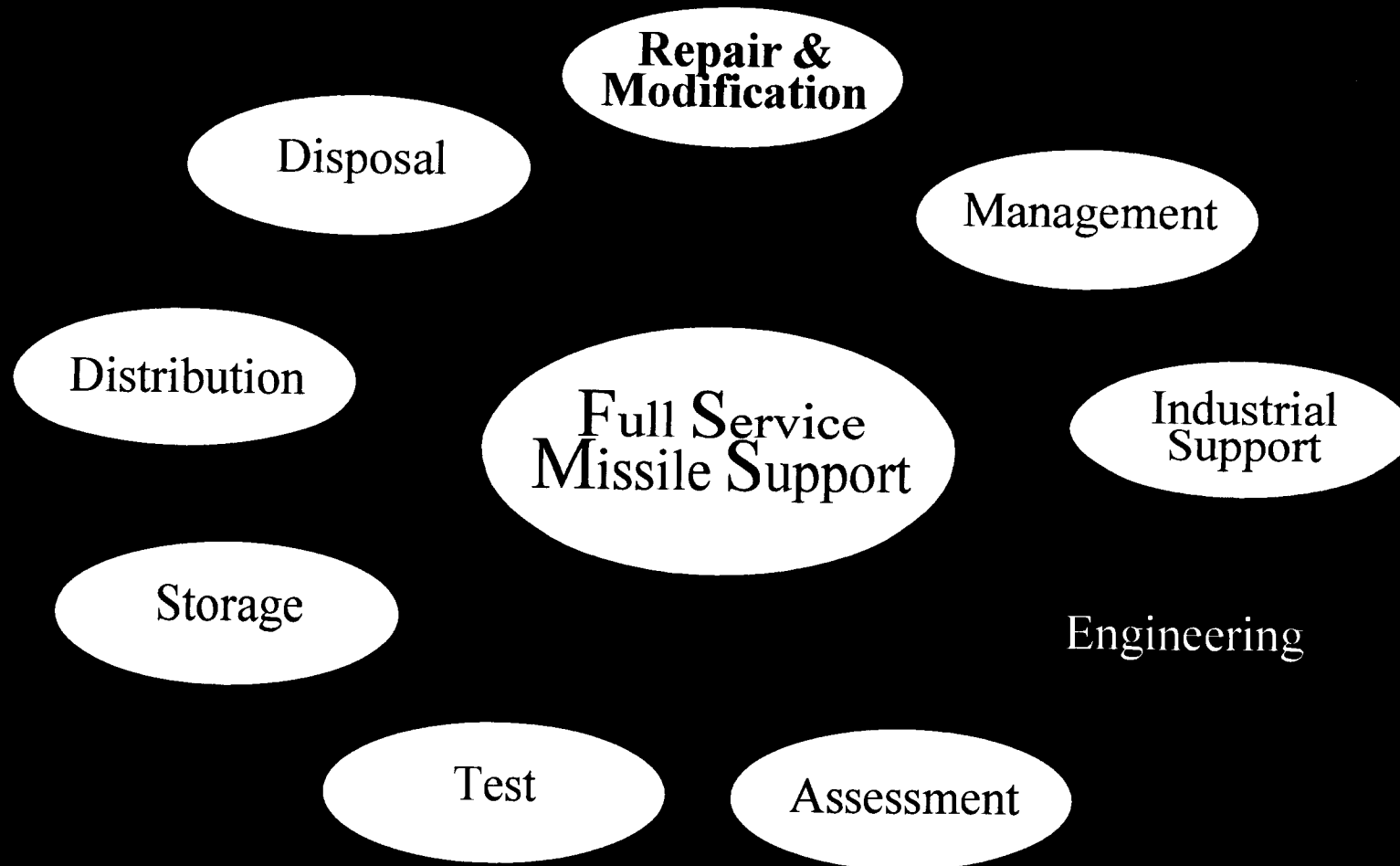
Major Missile Contractors in Local Area

Hercules/Alliant, Thiokol, Williams International

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Hill AFB Missile Support Capability



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Engineering

Systems Engineering Support

Hardware/Software, Design, Development, Test,
and Integration Expertise "In-House"

Software-in-the-Loop Testing

Independent Software Verification
and Validation

Structural & Electrical Failure Analysis

Time Studies & Process Improvement

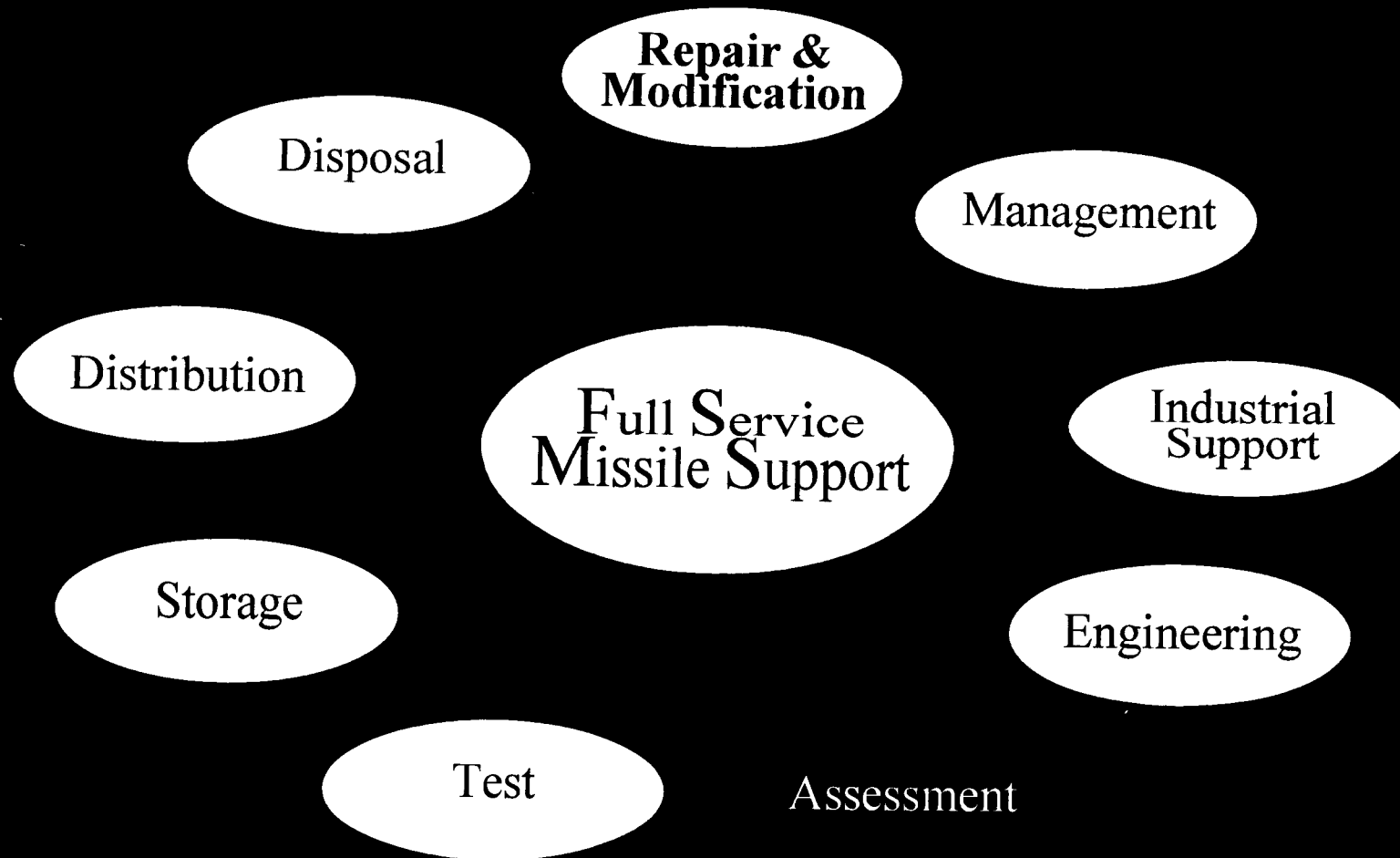
Probabilistic Modeling and Simulation for Tactical
Missiles and Aircraft

Provide Service to All Branches of the Armed
Services and FMS

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Hill AFB

Hill AFB Missile Support Capability



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Hill AFB

Assessment

Explosives Analysis

High Energy X-Ray and Computed Tomography (CT)

Rocket Motor and Warhead Dissections

Chemical and Physical Analysis

EPA Certified Chemical Analysis

Survivability/Vulnerability Analysis

Radiation

Shock and Vibration

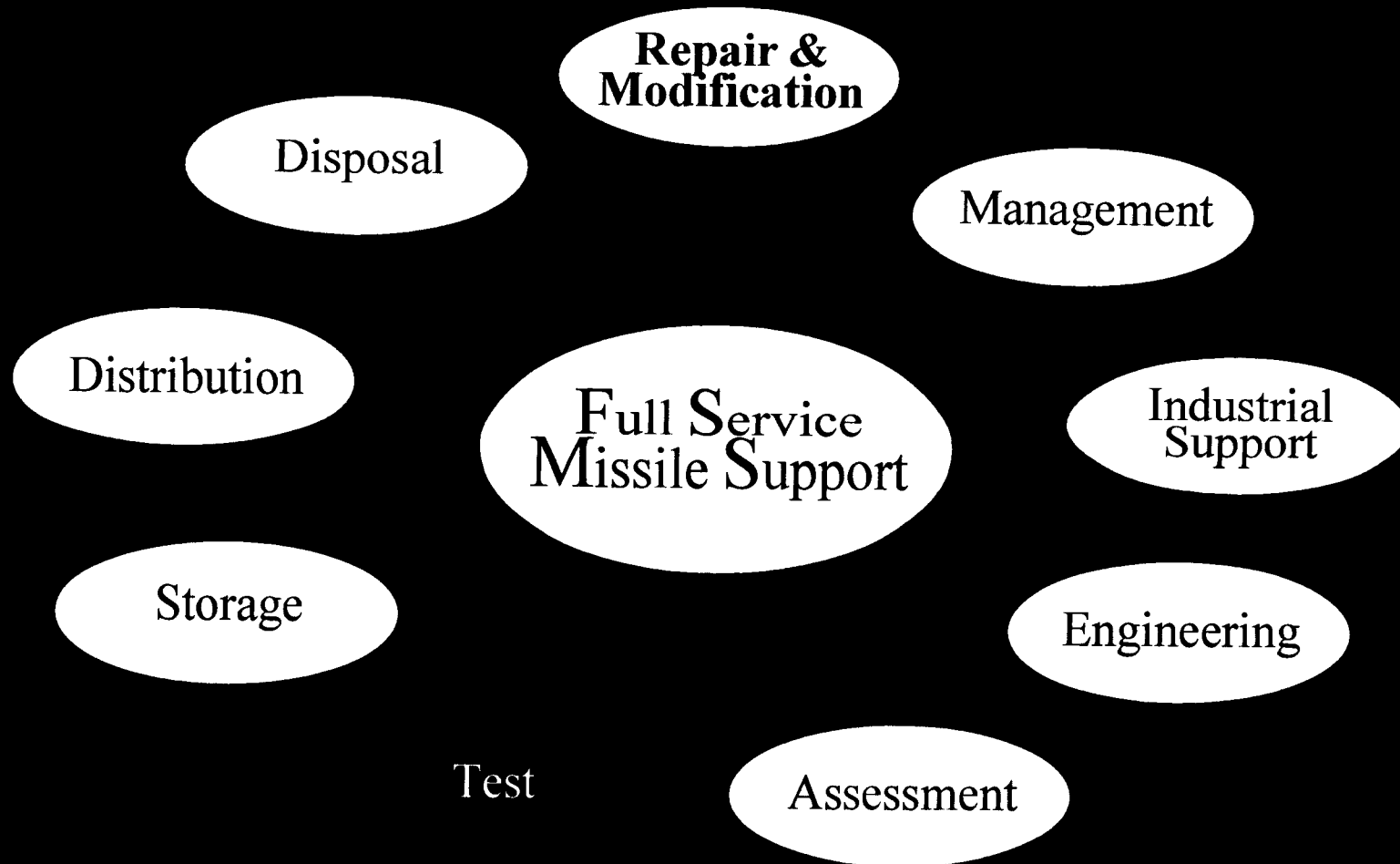
Electromagnetic Compatibility/Interference

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Computed Tomography provides one in 1000

Hill AFB

Hill AFB Missile Support Capability



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Hill AFB

Test

Acquisition and Sustainment Testing
Aging and Surveillance of AUR and Explosive
Components

Service Life Predictions

Safety Assessments

Live and Static Firing

Warheads/Large Motors: UTTR

Small Motors/Components: On-Base

Propellant Dissection Lab

Chemical/ Physical Properties

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UTTR only performs full course missile test

Hill AFB

Test (Cont)

Operational Users on Hill AFB

ALC - Analysis

545th Test Group - Weapon System Test

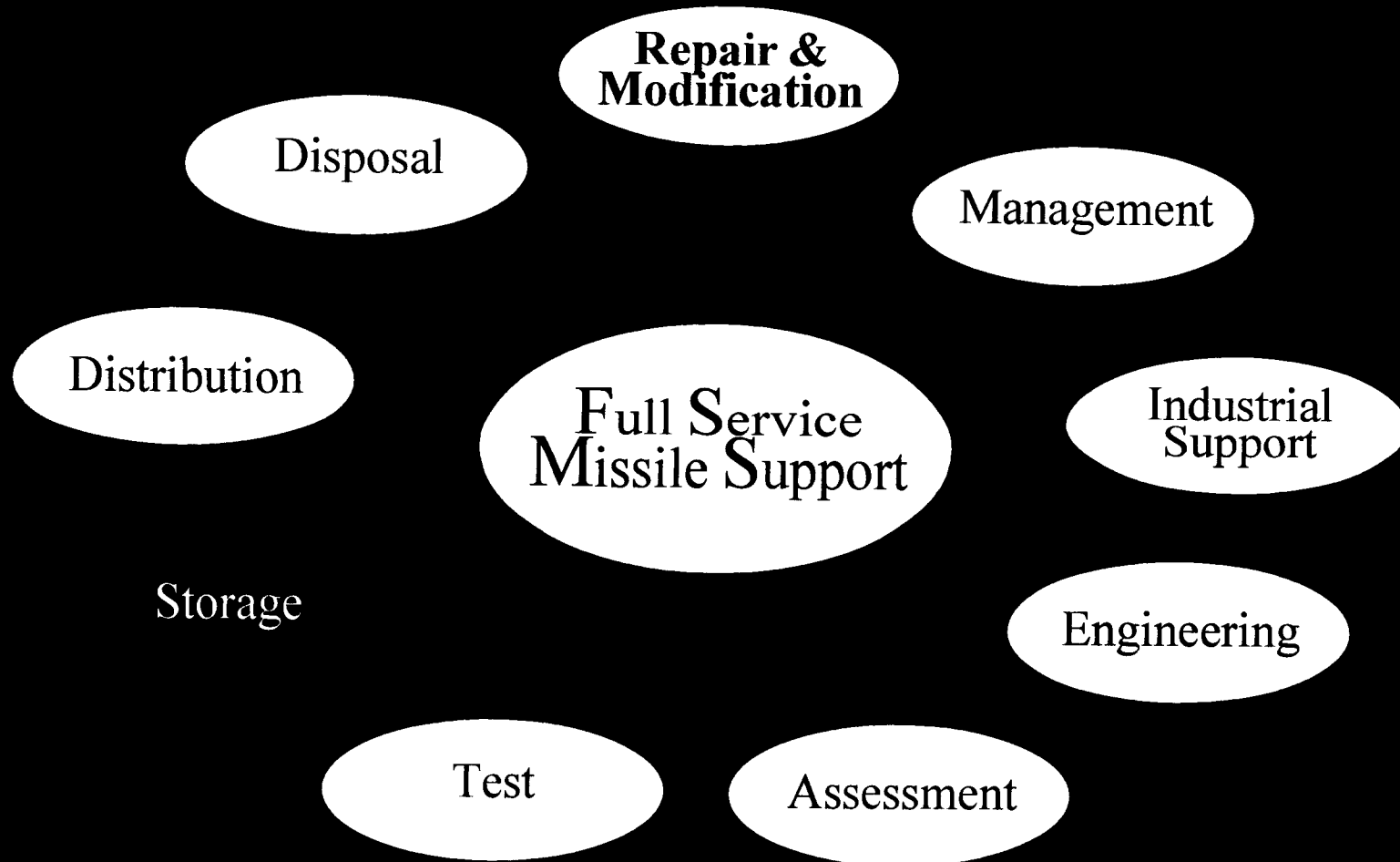
388th and 419th Fighter Wings - Operational
Flight

Utah Test and Training Range (UTTR)

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Hill AFB Missile Support Capability



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Hill AFB

Storage

Explosive Storage

Hill AFB Missile Assembly & Maintenance
Storage

- 247,000 ft²
- 259 Structures

400,000 Cubic Ft Adjacent to Hill AFB Runway
Oasis

- 108,000 ft²

Tooele AD

- 1M ft²

Non-Explosive Storage

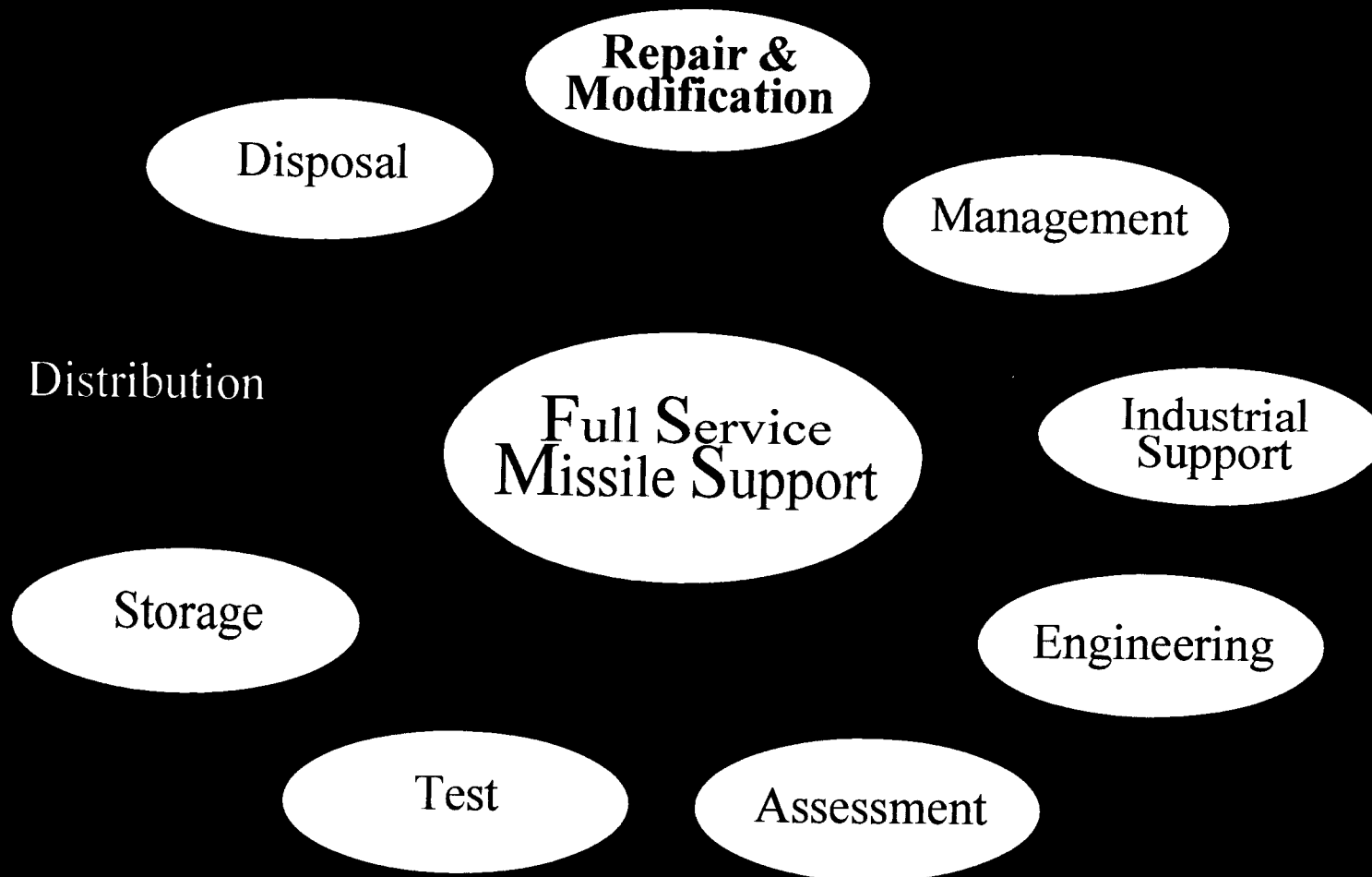
Hill AFB Storage Area is 252,000 ft²

Defense Logistics Agency (DLA) Storage Area is
3.4M ft²

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Hill AFB

Hill AFB Missile Support Capability



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Hill AFB

Distribution

Ammunition Control Point for All
USAF Non-Nuclear Munitions

\$10 Billion Inventory

Manage over 9500 Stock Numbers for Tactical
Missiles

Processed Over 4165 Tons of Munitions (167
Boeing 707 Equivalents) During Two-Month
Period in Support of Desert Storm

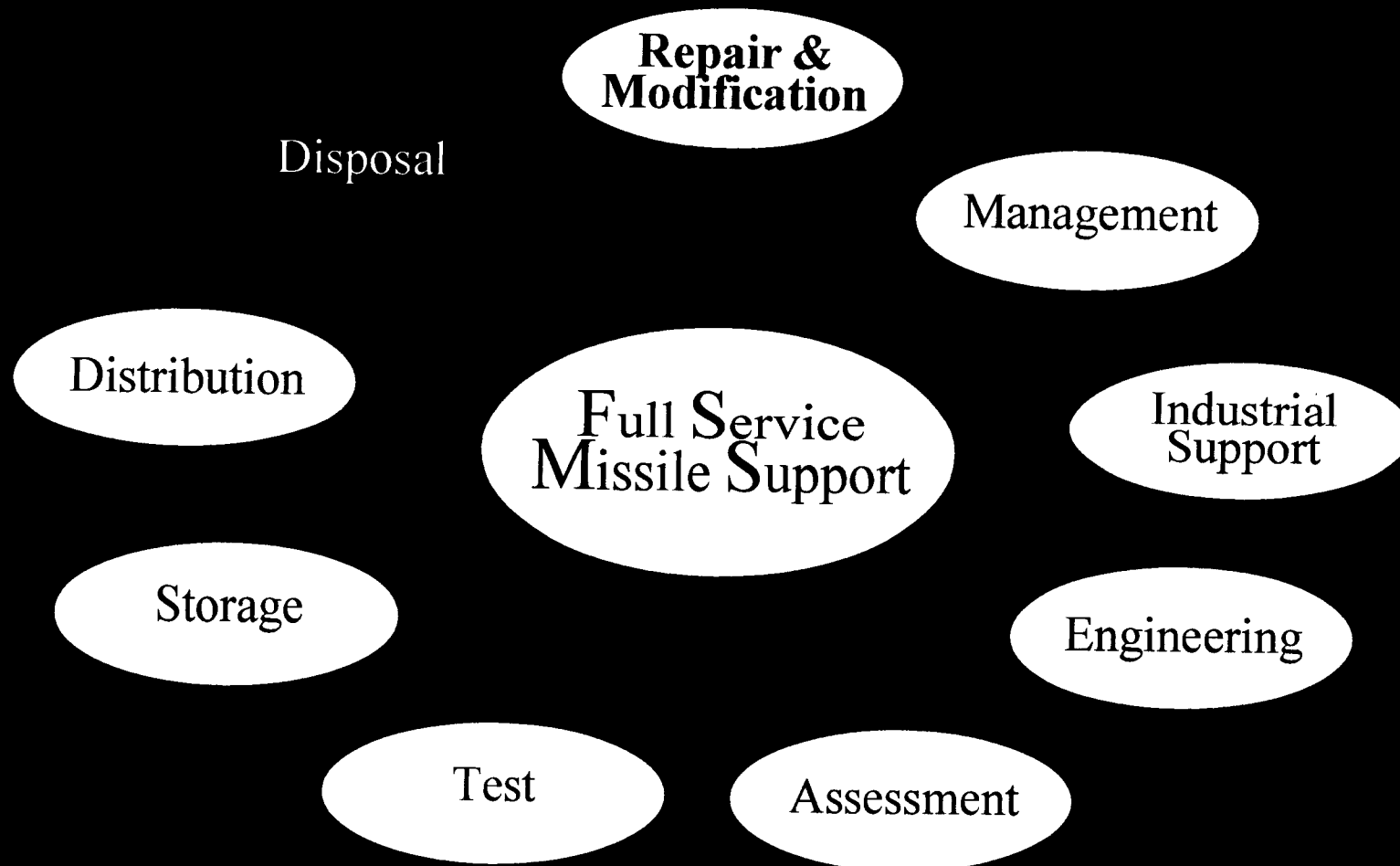
Located Near Major Transportation
Networks

Airfields, Interstates, & Rail Service

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Hill AFB

Hill AFB Missile Support Capability



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Disposal

Explosive Ordnance Disposal (EOD) Division
Uses Thermal Treatment Unit at Utah Test and
Training Range (UTTR)

Capable of Disposing of Large Explosives While
Maintaining EPA Compliance

One of a Few Select Sites

Tooele AD Also Used for Demilitarization
Use of New Technologies

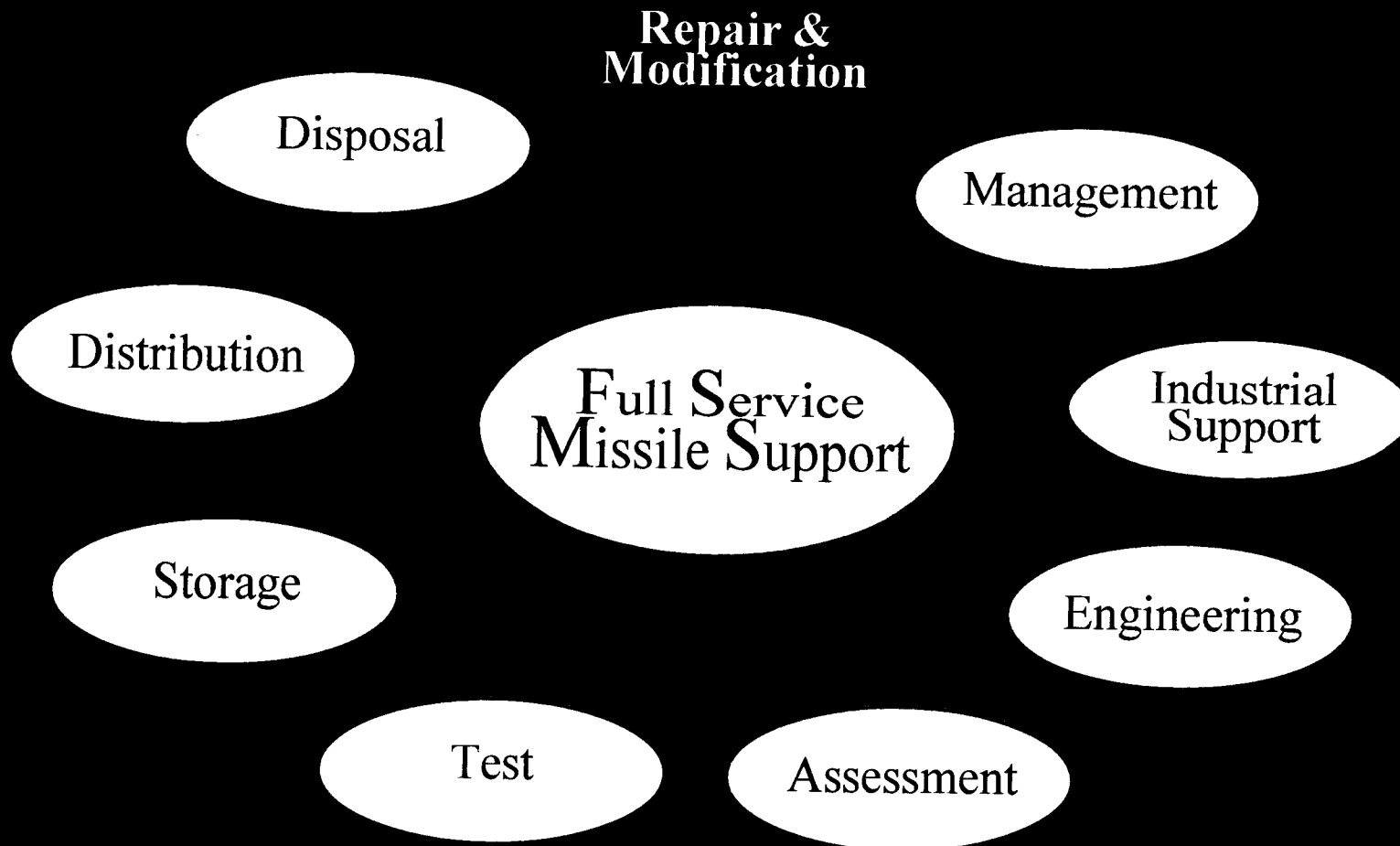
CRDA with USU and Thiokol for Rocket Motor
Washout to Reclaim AIM-9 Casings

Propellant Reclaimed for Commercial Use

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Hill AFB Missile Support Capability



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Repair and Modification

Repair and Modify Strategic and Tactical
All-Up-Round (AUR) Missiles

Minuteman ICBMs

Peacekeeper ICBMs

Maverick Missile

Air Launch Cruise Missiles (ALCM)

Advance Cruise Missile (ACM)

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Repair and Modification (Cont)



Guidance and Control Sections (GCS)

Maverick, Sidewinder, Stand-off Land Attack
Missile (SLAM)

Field and Depot-Level Test Equipment

Hardware and Software

Missile Launch and Control Facilities

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Hill AFB

Repair and Modification (Cont)

Launcher Repair

Both Strategic and Tactical Missiles

Launch Control

Vehicle Repair

Strategic Missiles

Customers Include: USAF, Navy, Marines,
Foreign Military Sales

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Air Craft Launcher

Hill AFB

Current Interservicing

Technical/Engineering

Maverick - (Navy, Marines, USAF)

Paveway - (Mod - Navy, Marines)

Harm - (Navy containers)

Sidewinder- (Navy, USAF)

Testing

Paveway - Maverick - AMRAAM (Navy, USAF)

HARM - (Navy, USAF)

Sparrow - (Navy, USAF)

Depot

Maverick - Sidewinder - Paveway - SLAM

Launchers (Navy, Marines)

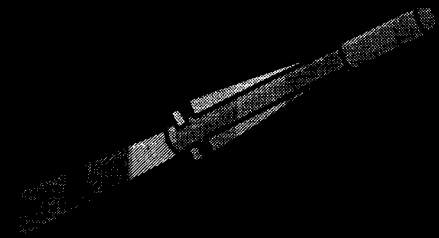
HARM Containers (Navy)

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Technical Missiles only

Hill AFB

Missiles of the Future



Consolidation Decision Drives Future Repair
Locations

Tactical Missiles of the Future Will Include
Stealth Technology

Hill AFB Has Only Missile Stealth
Capability in DoD Today

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Hill AFB

USAF Investment

Significant Investment (>\$1B) at Hill AFB to Consolidate Engineering, Test, and Repair Allows:

Synergy Between Strategic Missiles and Tactical Missiles

Optimizes Customer Support By Sharing of Overhead Costs Between Missile Systems

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Hill AFB

Tactical Missile Workload Transition Plan

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Hill AFB

Transition Plan

Hill AFB Can Handle All DoD Workload

Existing Capability

- 56,810 ft² Expandable by 165,000 ft²

Skills Already in Place

No MILCON

Minor Upgrades

Move Equipment Not Already at Hill AFB

Meet BRAC 93 Schedule

Initial Cost Avoidance: \$12.17M

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Cost Savings

Original BRAC Consolidation at LEAD	\$51M
Committed	<u>\$16M</u>
Remaining	\$35M

Consolidate 93 Workload At Hill	\$26M
JCSG/DM Consolidation	<u>6M</u>
• Red River (Vehicles and Launchers)	\$32M
• Tobyhanna (Missile Components)	
• Crane (Fuzes)	
• Black World	
Savings	\$3M

Hill AFB

Depot Labor Rate Comparison



Hill AFB	LEAD
\$69.27	\$101.33

*Depot Maintenance Operations Indicator Report
FY93/1 - FY94/2 Latter 4 Qtr Average Rates*

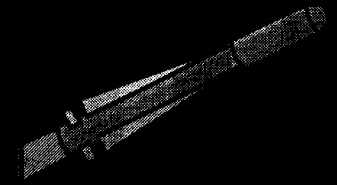
Hill AFB	LEAD	ANAD	TOAD
\$49.38	\$65.33	\$52.06	\$58.31

*Based on Cost Comparability Handbook and
Army Reported Depot Hourly Rates*

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Hill AFB

Labor Rate Impact



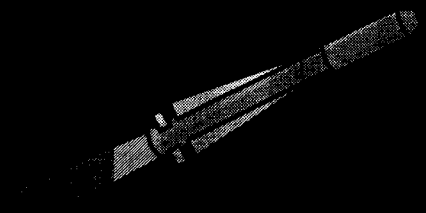
	94 Base Rate \$/Hr	FY99 Earned Hrs 845.4K \$M	Learning Curve Loss (000) Hrs	Learning Curve Loss \$M
LEAD	65.33	55.23	128.7	8.41
Hill AFB	49.38	41.75	55.4	2.74
Hill AFB Avoidance	15.95	13.48	73.3	5.67

Based on Labor Rates and Projected Learning Curve

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1B:42
1269
2nd year
1122
3rd year
1039
1st year
160

Cost Avoidance (Chart 1 of 2)



Original BRAC Consolidation at LEAD	\$51M
Obligated and Committed	<u>(\$26M) ?</u>
Remaining	\$25M
Consolidate 93 Workload At Hill	<u>(\$26M)</u>
Delta	<u>(\$ 1M)</u>
JCSG/DM Consolidation Cost	<u>(\$ 6M)</u>
• Red River (Vehicles and Launchers)	
• Tobyhanna (Missile Components)	
• Crane (Fuzes)	
• Black World	
Subtotal Delta	(\$7M)

Cost Avoidance (Chart 2 of 2)



Delta	(\$ 7.0M)
-------	-----------

Other Cost Avoidance	<u>\$13.5M</u>
----------------------	----------------

Recurring (1 Year)

- Hill AFB \$15.95/Hr Less

Cost Avoidance	\$6.5M
----------------	--------

Non-Recurring Cost Avoidance	<u>\$5.67M</u>
------------------------------	----------------

- Learning Curve (3 Years)

Total Cost Avoidance	\$12.17M
----------------------	----------

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Hill AFB

Transition Plan

Integrate Immediately

No MILCON/Upgrade

Workload Already In-Place

Workload

- AUR
- Sidewinder (AF, Navy)
- Maverick (AF, Navy, USMC)
- Hellfire (Army)
- SLAM (Navy)

Bldg

2026

100

5

5

5

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Hill AFB

Transition Plan

Remaining Workload

No MILCON

Minor Upgrades

Common Skills

Workload

Bldg

- | | |
|----------------|--------|
| • Dragon | 5 |
| • Phoenix | 5 |
| • Shillelagh | 5 |
| • Sparrow | 5 |
| • TOW II | 5 |
| • MLRS | 5, 847 |
| • LCSS | 847 |
| • TOW Launcher | 847 |
| • TOW BFVS | 847 |

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Transition Plan

Remaining Workload (Cont)

Workload*	Bldg
• AMRAAM	100
• Standard	100
• Avenger	100, 847
• Red River Workload	847
• Patriot	5, 847
• HAWK	5, 847
• Tobyhanna Workload	5, 100
• HARM	5
• ATACMS	5
• Crane Workload	509
• Black World	1515

*Transition Must Start Immediately Upon BRAC 95 Decision

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Hill AFB

Conclusions

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Conclusions

Tactical Missile Consolidation Makes Sense at Hill AFB

Can Accommodate Entire DoD Workload

Provides Full Service Support

Postured for Future Technologies (Stealth)

Minimizes Impact to the Customer

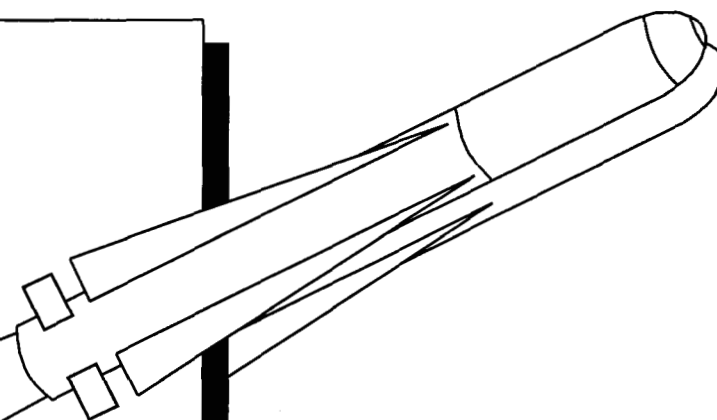
Meet Original BRAC Schedule

Save Millions

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Hill AFB

Tactical Missile Repair



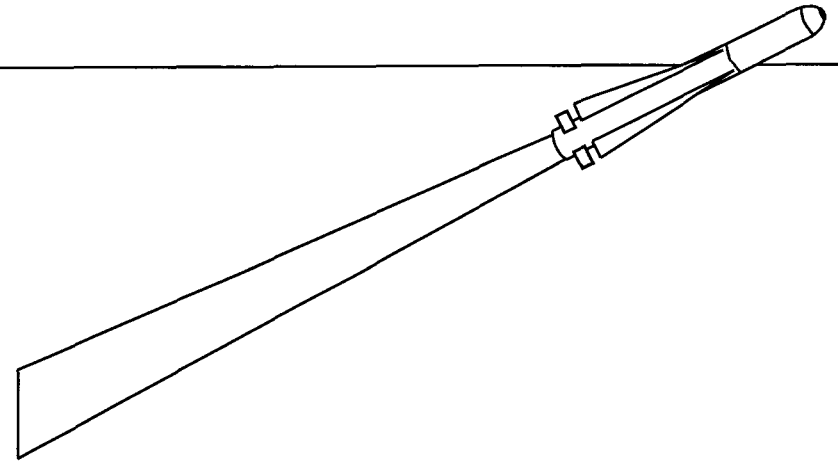
Jeannie Hathenbruck

24 May 1995

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Overview

- Background
- Full Service Support
- Alternative Solution
- Conclusions



Background

➤FY93

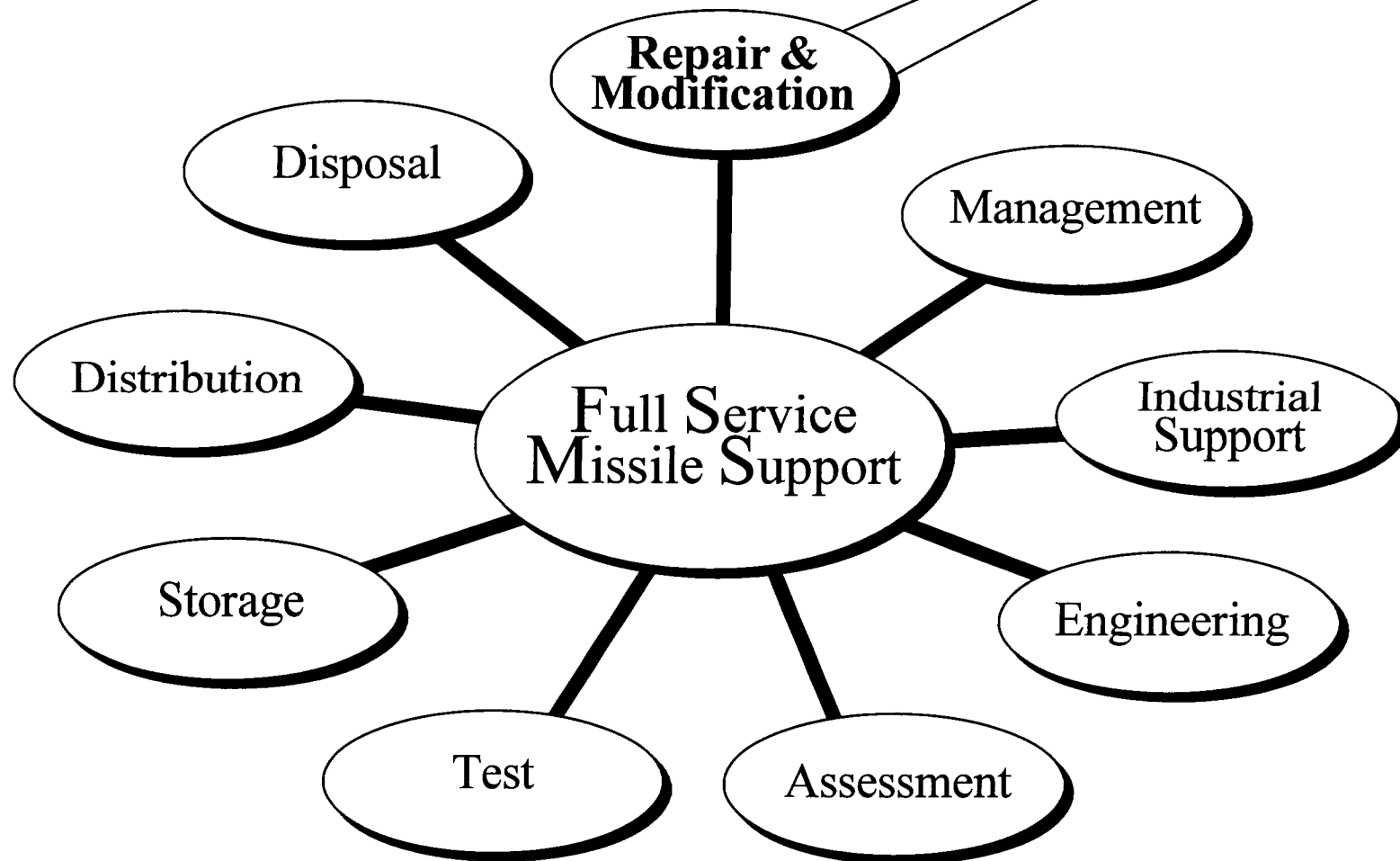
- DoD Recommended Closing Letterkenny (LEAD)
- BRAC 93 Consolidated Tactical Missiles at LEAD

➤FY95

- Army Recommended Realignment of LEAD Maintenance Depot
- DoD Tactical Missile Recommendation Fragments Consolidation Efforts

Hill AFB

Hill AFB Missile Support Capability



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Current Interservicing

➤ Technical/Engineering

- Maverick - (Navy, Marines, USAF)
- Paveway - (Mod - Navy, Marines)
- Harm - (Navy containers)
- AIM-9 - (Navy, USAF)

➤ Testing

- Paveway - Maverick - AMRAAM (Navy, USAF)
- HARM - (Navy, USAF)
- Sparrow - (Navy, USAF)

➤ Depot

- Maverick - Sidewinder - Paveway - SLAM
- Launchers (Navy, Marines)
- HARM Containers (Navy)

Missiles of the Future

- Consolidation Decision Drives Future Repair Locations
- Tactical Missiles of the Future Will Include Stealth Technology

Hill AFB Has Only Missile Stealth Capability in DoD Today

Hill AFB

Alternative Solution

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Alternative Solution

- **Hill AFB Provides a Viable Alternative**
 - 35 Years of Missile Experience
 - USAF Consolidated Workload at Hill AFB 1970's
 - Significant Amount of DoD Organic Tactical Missile Workload
 - 122,000 DLH GCS (53% of DoD Tactical Missile)
 - Currently Produce 2700 Guidance Sections Annually
 - 624,000 DLH Launcher, Vehicle, and All Up Round Workload (Strategic and Tactical)

FULL SERVICE SUPPORT

MILCON

➤ MILCON

- Patriot Radar Range \$2.0 M
- Bldg 5 Bay P Mezzanine \$0.44 M
- Bldg 2214 \$0.35 M

➤ Storage - NO MILCON

Total MILCON

\$2.79M

187K would be available on 1 Feb

Equipment Transfer

- LEAD Estimate (May 95 Visit) \$7.346M
 - Included PATRIOT and HAWK Estimate by LEAD \$4.4M
 - Calculated Transfer: \$750K
- Other Systems (13) \$2.946M
- PATRIOT and HAWK \$0.750M
- Hill AFB Estimate \$3.696M

Inventory Transfer and FAT

- LEAD Estimate May 1995 Visit \$3.106M
(Includes PATRIOT and HAWK)
 - Maverick, Sidewinder, and Standard Inventory
Transfer Cost Is Seen As Equivalent to PATRIOT
And HAWK.

Inventory Transfer Cost	\$3.106M
-------------------------	----------

First Article Test (FAT)	\$1.063M
--------------------------	----------

Training

➤ All Systems

(Except PATRIOT and HAWK)

- LEAD Budget \$5.4M
- Basic Training - All Systems -\$1.9M
- PATRIOT and HAWK (LEAD) \$14.0M

TOTAL \$17.5M

\$3.5M

don't need basic electronic training

➤ PATRIOT & HAWK

- LEAD Training: \$67K per PE (328 PE) \$22M
- Hill AFB Training Estimate: \$40K per PE \$ 5M
 - Train 50% PE (20% PCS, 30% Remain)
 - Hill AFB ACM \$36K per PE

Hill AFB Training Anticipated \$8.5M

Basic Skills Readily Available

➤ Labor Pool

- Past and Current Realignments
- Dorn Memo
- Associate Degrees per Year
- Vocational School Graduates
- Hercules/Alliant TechSystems, Thiokol, Williams International

➤ Available Skilled Labor Pool (FY96-99) Exceeds 2,000 People (Hill AFB People)

Facilities and Capacity

➤ Facilities

- Minimal Costs Because of Existing Raised Floors, HVAC, Clean Rooms, etc.
- Estimated Upgrade Cost: \$0.989M

➤ Repair Capacity

- | | |
|---------------------|-------------------------|
| ● Current Inert | 46,500 Ft ² |
| • Expandable by | 321,820 Ft ² |
| ● Current Explosive | 56,810 Ft ² |
| • Expandable by | 51,500 Ft ² |

Hill AFB

O&M And OPA Equipment Personnel PCS

O&M and OPA Equipment

- Hill Estimate \$3.216M
(Army BRAC Agreed To \$2.8M May 95)

PCS

- FY95 LEAD End Strength: 505 PE
 - 20% PCS When Workload Transfers: 153 PE
- PCS Cost \$5.4M

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Personnel

➤ Need 766 PE by FY99

- Excludes 86 PE (GCS & AUR Work at Hill AFB)
- Excludes PE For Hawk and Patriot Mod FY98-99

➤ 153 PCS

- Need to Hire (Over 5 Years): 613
 - Welding, Sheetmetal, Electrical, etc.

➤ From Whence ?

- Hill AFB RIF: >600 Sept 1995
- Dorn Memo: >1600 Over 5 years
 - 899 DMBA Being Released
- Plus
 - Tooele AD BRAC 93 Realignment (Mechanics)
 - Local Area Skill Pool
 - DDO BRAC 95 Potential Closure

Bottom Line Costs

	Hill AFB	Army BRAC
➤ MILCON	\$ 2.79 M	\$124.0M*
➤ Equipment Transfer	3.696M	7.3M
➤ Inventory Transfer	3.106M	3.1M
➤ FAT	1.063M	1.1M
➤ Training	17.5 M**	28.0M*
➤ Facility Mod	.989M	7.8M*
➤ O&M & OPA Equip	3.216M	2.8M
➤ PCS	5.4 M	51.0M*
➤ TOTAL	\$37.76 M	\$225.1M

**Excessive by About \$9M

ICS Not Included (Maverick - \$72M; Patriot \$84M)

Hill AFB

Recurring Cost Avoidance

Hill AFB	LEAD
\$69.27	\$101.33

\$36,760
15.

*Depot Maintenance Operations Indicator Report
FY93/1 - FY94/2 Latter 4 Qtr Average Rates*

Hill AFB	LEAD	ANAD	TOAD
\$49.38	\$65.33	\$52.06	\$58.31

Based on *Cost Comparability Handbook* and
Army Reported Depot Hourly Rates

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Storage

➤ Issue: Tactical Missile Storage

- Collocated Storage Needed Only to Meet Repair Requirements

DoD Stockpile Optimization Plan

➤ Depot Tiering Concept

- Tier 1 - Full Service

- First 30 Days Contingency Response
- Support DoD Training Needs
- Maintenance
- Demil

- Tier 2 - War Reserve

- D +31 Response

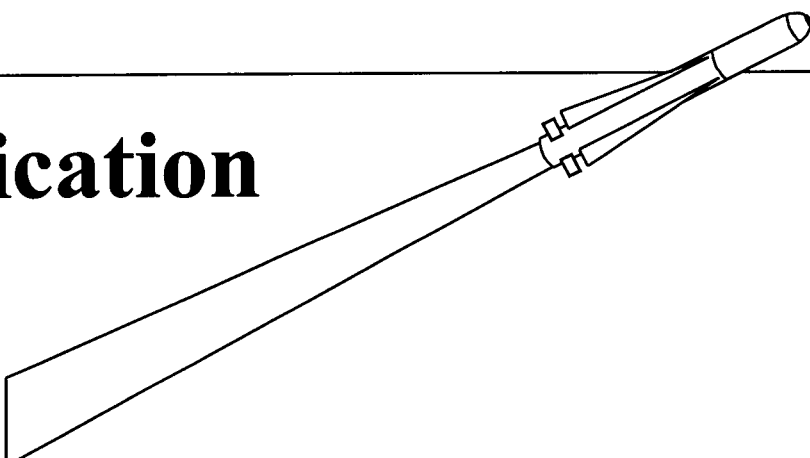
- Tier 3 - Static Storage

➤ All Services and OSD Participated and Agreed

➤ Precision Guided Munitions Will be Stored in Tier 1 Depots (4 Are Identified)

Hill AFB

Army Tiering Identification



Tier	West	Central	East
1	TEAD	MCAAP	CAAP BGAD
2	HWAAP	RRAD	ANAD LEAD
3	SIAD	SVAD	SEAD

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Power Projection

<u>Depot</u>	<u>Container</u>	<u>Break Bulk</u>	<u>Total</u>
ANAD	1,040 ST/Day	800 ST/Day	1,840
BGAD	2,080	3,760	5,840
CAAP	780	11,300	12,080
HWAAP	923	1,280	2,203
LEAD	520	3,480	4,000
MCAAP	3,900	5,560	9,460
RRAD	728	2,840	3,568
SEDA	104	1,060	1,164
SIAD	1,144	2,000	3,144
SVDA	1,989	1,700	3,689
TEAD	1,170	8,600	9,770

Tactical Missile Storage

- Army BRAC Identified 1M Ft² For Collocated Tactical Missile Storage
 - LEAD Reported 275K Ft² Of Missiles At LEAD
- Total Actual DoD Requirement is Questionable and Fluid
 - USAF Requirement at LEAD: 62K Ft² *Actual Hawk Storage ATACMS*
 - Navy Requirement: 0 (Stored at Coastal Depots)
 - Army Requirement: 338K Ft² (4 Systems)
- The Only Required Collocated Storage IAW DoD Plan is to Meet Repair Requirements

Hill AFB Available Missile Storage: 187,000 Ft²

Hill AFB

Schedule

ID	Task Name	1996				1997				1998				1999				2000				20	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1	GUIDANCE																						
2	AMRAAM																						
3	HARM																						
4	MAVERICK*																						
5	PHOENIX																						
6	SIDEWINDER*																						
7	SPARROW																						
8	LAUNCHER/VEHICLE																						
9	ATAS BOTTLES																						
10	ATAS/AVENGER																						
11	AVENGER																						
12	DRAGON																						
13	HAWK																						
14	LCSS																						
15	MLRS																						
16	PATRIOT																						
17																							
18	*WORKLOAD IN PLACE																						

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Hill AFB

Schedule (cont)

ID	Task Name	1996				1997				1998				1999				2000				Q1
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
16	LAUNCHER/VEHICLE (cont)																					
17	SHILLELAGH																					
18	TOW BVFS																					
19	TOW COBRA																					
20	TOW II																					
21	ALL UP ROUND																					
22	ATACMS																					
23	HARM																					
24	HAWK																					
25	HELLFIRE																					
26	PATRIOT																					
27	PHOENIX																					
28	RED RIVER																					
29	SIDEWINDER																					
30	SPARROW																					
31																						
32	*WORKLOAD IN PLACE																					
33																						

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Conclusions

Conclusions

➤ Tactical Missile Consolidation Makes Sense at Hill AFB

- Can Accommodate Entire DoD Workload
- Provides Full Service Support
- Postured for Future Technologies (Stealth)
- Minimizes Impact to the Customer

Meet Original BRAC Schedule

Millions Less - Recurring Costs Avoidance

Document Separator

DoD ANALYST NOTES
BRAC COMMISSION
BRAC 93 RE-DIRECT PROPOSAL
TACTICAL MISSILE CONSOLIDATION

INTRODUCTION: On 26 April 1995, the BRAC Commission directed the Army to examine a BRAC 93 re-direct proposal to move the tactical missile consolidation from Letterkenny Army Depot (LEAD) in Chambersberg, PA to Hill AFB in Ogden, UT (Tab A). During 1-2 May 1995, a team of Air Force and Army personnel conducted a review of consolidated tactical missile requirements and a site survey of facilities at Hill AFB. This team had only four days to conduct this analysis and document the results; therefore, the results are to be considered approximate to frame this proposal for the BRAC Commission's Add hearing.

SCOPE: The scope of this analysis relates to the re-direct of a BRAC 93 Law requiring the consolidation of all tactical missiles listed in the "Green Book" for DoD at LEAD. The BRAC 93 initiative included receipt, disassembly, missile maintenance, assembly, storage, and distribution. Currently, 15 of 25 systems have transferred to Letterkenny at a cost of \$25 M. This proposal directs this workload to be moved to Hill AFB, Ogden, UT. Additionally, the BRAC 95 proposals to downsize Air Force Air Logistics Centers (ALC) and the Closure of Red River Army Depot (RRAD) must be taken into consideration because of the impacts on the work force and other tactical missile workload being displaced. The total FY 99 workload required to be considered is 1,493 KDLH, of which 121 KDLH has not transferred from Hill AFB to LEAD.

SCENARIO:

a) Realign Letterkenny by relocating tactical missile workload including missile disassembly and storage, and maintenance and control systems from Letterkenny Army Depot to Hill Air Force Base. Transfer ground support equipment and artillery maintenance workloads to meet DoD requirements and stationing strategy. Retain an enclave at Letterkenny for conventional ammunition storage.

b) Close Letterkenny by relocating tactical missile workload including missile disassembly and storage, and maintenance and control systems from Letterkenny Army Depot to Hill Air Force Base. Transfer ground support equipment, artillery maintenance workloads and conventional storage to meet DoD requirements and stationing strategy. (No Storage enclave)

METHODOLOGY: The following methodology was used to develop the financial consideration of the scenarios stated above. The starting point of this methodology was the Air Force proposal to consolidate all tactical missiles at Hill AFB (Tab B). It was established early on that this proposal could not be used in total because the basis for the Air Force study was the tactical missile consolidation plan used at LEAD. The failure to recognize the existing workload at LEAD on Patriot and Hawk (658 KDLH) resulted in under estimating approximately half of the workload to be considered. However, it did provide a basis to conduct this analysis. LEAD

provided the team a set of requirements based on there knowledge of the required missile systems IAW their implementation plan to accept this workload, followed by a site visit of available facilities at Hill AFB. Detailed discussion followed to examine the specific aspects of the facilities to meet the requirements and other related costs to relocate the missile workload. Hill AFB personnel, consulting with LEAD personnel, developed an estimate of the cost factors to accept the workload at Hill AFB (Tab C). A review of that estimate was conducted by the Army Basing Study office in conjunction with representatives of Air Force Air Staff and OSD. Some adjustments were made on the AF estimates and additional costs were based on clarification instructions from the BRAC Commission. These adjustments will be discussed below. Once these cost factors were developed, a COBRA analysis was conducted to determine the cost impacts of this proposal.

COST FACTORS:

1) **WORKLOAD:** The workload estimates used in this analysis was agreed on during the meeting on 2 May 95. This total workload was established to be 1,493 KDLH of which 121 KDLH currently is located at Hill AFB and has not been transferred to LEAD from Hill AFB. Therefor, the net workload required to be transferred to Hill AFB is 1,272 KDLH.

2) **TIME FRAME:** The time frame to execute this proposal by the Air Force was adjusted one year to conduct the environmental Impact Survey (EIS) that is required by Law before any recommendation can be executed.

3) **PERSONNEL:** The methodology to determine personnel requirements was established by using the Joint Cross-Service Group for Depot Maintenance (JCSG-DM) procedure of dividing the FY 99 direct labor workload by 1615 hours per year. Indirect personnel requirement were calculated by taking 17% of the direct labor requirement and base operations support (BASOPS) was computed at 2% of the total direct and indirect labor requirements. The Air Force BASOPS method of calculation was used to be consistent other Air Force recommendations, since the gaining installation is Air Force.

Using the method discussed above, the number of people required to meet the additional tactical missile workload is:

Direct	788	$(1,272,000 / 1615)$
Indirect	134	$(.17 * 788)$
<u>BASOPS</u>	<u>19</u>	$(788 + 134 * .02)$
Total	941	

The Air Force estimate stated that no additional people would be required to meet this increased workload. This was based on a stated reduction due to the Air Force BRAC 95 recommendations and actual manpower strengths at the ALC (current approved RIF for 600 employees effective 1 Oct 95 plus a revised Air Force BRAC recommendation elimination of 635 personnel). The figure was adjusted due to the following reasons:

a) IAW the methodology prescribed by the JCSG-DM and supported by OSD, the

Army used certified Air Force workload figures submitted to the JCSG-DM as a starting point. The certified total workload at Ogden for FY 95 was 5,256,392 DLH and reduced to 4,938,623 DLH by FY 99. This was a reduction of 317,770 DLH or 197 people (317,770 / 1615) that can be applied to the transferring workload to Hill AFB. These workload figures were again certified to be correct to OSD on 4 May 95 by the Air Force Air Staff, Logistics. ✓

b) An adjustment for the Air Force BRAC 95 recommendation was directed by the BRAC Commission using the initial recommendation figures (Tab D). This adjustment directs that Hill AFB be increased in strength by 237 people.

c) Hill AFB has a net gain of 40 personnel by FY 99 (+237 - 197). The RIF of 600 people used by Hill AFB can not be considered because they are programmed force reductions and would have been eliminated long before the BRAC 95 re-direct would be started in FY 96. The difference between using the Air Force initial BRAC 95 recommendation and their latest proposal was a commission decision.

The personnel figures used in this proposal requires a transfer of 922 personnel from LEAD (direct (788) and indirect (134)) to meet the mission requirements and a hiring increase of 59 personnel (19 + 40) at Ogden, UT to meet the BASOPS and other mission increases.

4). MILCON: Hill AFB has currently has approximately 1.5 MSQFT of excess space; therefor, there is little requirement for MILCON needed to meet the tactical missile requirements (500 - 600 KSQFT). The only exceptions are the following:

a) Missile Storage: Missile storage is one of the requirements of the re-direct scenario. The Air Force has provided data that supports 100,000 SQFT of available explosive storage with 70,000 SQFT open immediately and the remaining 30,000 SQFT available over the next three years on Hill AFB and Oasis. The requirement for all tactical missile storage is 1 MSQFT of missile explosive storage.

The Air Force position is to leave the remaining missile storage at LEAD, PA or Tooele Army Depot, UT. Clarification from the Commission indicated that the requirement is for storage on Hill AFB, Oasis or Tooele Army Depot (Tab E). Tooele Army Depot is only 80 miles away, but is currently designated as a Tier I ammunition Depot (war reserve) and is program to be at 100% capacity. Given the Army BRAC 95 recommendations, there will be no existing igloo capacity to relocate the LEAD conventional ammunition (460 igloos). The only available buildable acres for storage would be at either Hawthorne, NV or McAlester Army Ammunition Plant, OK. Additionally, it would require a reprogramming the entire regional tiering program which would require a complete new study on ammunition storage for DoD, would reverse three Army BRAC 95 recommendations, and loss millions of dollars it has establishing this tiering program.

Military construction would be required to meet the additional 900,000 SQFT of explosive storage (1,000,000 - 100,000) at Oasis storage site which is operated by Hill AFB (30 air miles away). The cost of a Stradley Magazine was based on AR 415-17, dated 1980, and

using a 5% inflation factor - \$131 per SQFT. The cost of the additional storage at Hill AFB would be \$117.9 M ($900,000 * 131$) for the realignment scenario and the cost of the closure scenario would require an additional construction of 460 igloos at Hawthorne or McAlester at a cost of \$180.8 M. The closure scenario total cost for storage would be \$298.7 M ($117.9 + 180.8$).

b) New Construction for Radar Test Site - Patriot: The requirement for a radar test facility could not be met at Hill AFB and the Air Force programmed \$510,000 in MILCON to meet the requirement. The Army had to build the same site at Letterkenny in 1988 at a cost of \$1.8 M. The cost used is the Army's 1988 cost inflated 5%/year, resulting in a \$2 M MILCON.

c) ATACMS Up Round Facility: The ATACMS requirements are a little different due the containerized aspects and size of the round. Therefore, the Air Force proposed to house the ATACMS in Bldg 2214 - a building having the floor space required and located in the ammunition up round area. However, LEAD personnel report that the building will require extensive modifications to meet the requirements of the mission and was scheduled to be demolished or converted to inert storage (non explosive storage). The building was reported to be under review by the Hill AFB explosive safety office to determine if it should have a live munitions operation and therefore, have an explosive license. The building is adjacent to a Hill AFB natural gas vent area and POL facility which impedes it's current munitions hazard classification/limit of 425 lbs, 1.1 per bay. Additional, numerous structural problems were reported by LEAD personnel to exist from wall construction, door size, ceiling height, and bay orientation. LEAD indicates that the building is unlikely to ever be approved/wavered for the explosive safety rating to meet the ATACMS requirements. The Air Force has proposed renovation costs of \$287 K for BLDG 2214 - the Army's estimate is close to \$2 M to renovate. The Air Force indicates if this building does not meet the needs of the PEO/PM ATACMS, that another buildings will be provided. The original construction cost for the building was documented to cost \$5.5 M. The method to resolve this issue will be to use the DoD standard factor for renovation - 59% of construction cost. The renovation cost for ATACMS is \$3.2 M.

117.9
3.2
121.1

The total construction/facility modification cost for the realignment scenario will be \$123.1 M ($117.9 + 2 + 3.2$) and the closure scenario will be \$303.9 M ($117.9 + 2 + 3.2 + 180.8$).

5. **TRAINING COST**: Training cost discussed at Hill AFB reflected LEAD best guess on this cost based on actual figures. This cost was estimated at \$28.3 M. The Air Force believes that this cost is inflated, specifically the Patriot and Hawk training which was estimated \$22 M. The Air Force estimate was \$17.4 M. The Army's estimate was based on relocation of some of the experience personnel. The estimate used in the model is the difference between the two at \$19.6 M.

28.3
9.7
18.6

6. **INVENTORY TRANSFER**: The inventory transfer cost (\$1.8 M) provided by the Air Force used an estimated cost for Patriot (\$50,000). This cost was not available during the meeting at Hill AFB but was subsequently provided at a cost of \$3.1 M. The inventory cost was adjusted to \$4.9 M ($1.85 - .05 + 3.1$).

4.9
1.85
3.1
4.9

7. **OTHER COSTS:** The following costs were reviewed at Hill AFB and added to the scenario. The costs are:

Equipment Transfer	\$ 7.3 M
First Article Testing	\$ 1.1 M
<u>Equipment purchase</u>	<u>\$ 2.7 M</u>
Total	\$11.1 M

8. **COST NOT INCLUDED:** There are several costs that need further investigation to determine if the cost exists or should be included. The are:

a) Intermediate Contract Cost (ISC): To maintain system readiness during transition, a common practice by the PEO community is to fund ISC. There are other methods to maintain readiness like increasing production and stocking sufficient stocks. The method used is a PEO decision. Both methods can require substantial cost: for example, the DMRD decision to move Hawk and Patriot in 1991 resulted in a \$84.5 M ISC cost. The Army and Air Force have experience similar costs for all missile systems. However, there is a current directive that require the Services to absorb these costs. OSD is currently examining this directive in light of BRAC. Therefor, ISC costs have not been included or estimated.

b) Relocation Costs: In accordance with standard BRAC methods, relocation costs to vacate space needed for a BRAC recommendation are normally included. in a scenario. Due to the time constraints, the estimated cost to vacate existing space and reconfigure the space for the tactical missile mission has not been included, nor has the transportation cost, reconfiguration cost or storage cost associated with the movement of Minuteman missiles to Navajo National Guard Depot, AZ to free up the 30,000 SQFT of missile storage igloos to meet the Air Force 100,000 SQFT available figure. Their is no stated intent to move the missiles, but conversation at Hill AFB indicated that such a move was required and discussion with the Arizona National Guard took place. The estimated costs to Arizona to receive and store 30,000 SQFT of Minuteman motors are \$242,000 for receipt and storage, \$1,606,000 for facilities modification, and a recurring storage cost of \$225,000. No transportation costs were provided.

c) Other MILCON: Not included in this scenario is any added MILCON for family housing, administrative space, or child development centers that may be required due to the increase of people transferring to Hill AFB.

9. **COST AVOIDANCE:** Fifteen of the 29 missile/missile configurations have transferred to Letterkenny as of April 1995. During FY 95, an additional 6 systems/system configurations will be transferred, followed by 3 systems in FY 96, and the final 5 systems in FY 97.

A total of \$16.1 million has been spent in FY 94, of which \$4.5 million is construction to complete 3 of 4 projects. The balance of funding is split between \$1.7 million in procurement funds and \$9.9 million in operations and maintenance, Army (OMA) funds. There has been an additional \$10 million in OMA dollars that have been obligated in FY 95. Total expenditures and

obligations are \$26.1 M of the projected \$51.1 M, the difference will result in a \$ 25 M cost avoidance.

A draft DoD IG audit of the BRAC 93 missile consolidation indicates that the \$40 M of the projected \$44.1 M total will be obligated reducing the cost avoidance to \$4.1 M. However, since the latest Joint Services Working Group on Tactical Missile Consolidation briefed the \$51.1 M figure - this study will use the \$25 M cost avoidance.

Document Separator

Guidance and Control Workload Definitions

The scope of the overhaul / repair requirements focus on complete diagnostic testing down to component level. The depth of repair is assumed to be down to components that are throw-away. All others are expected to be fixed unless other-wised directed.

AMRAAM (Advance Medium Range Air to Air Missile): Guidance and control electronic components which include inertial autopilot midcourse guidance with active radar homing terminal and digital programmable signal processor allowing software adjustments for target discrimination and to counter ECM.

HARM (High-speed Anti-Radiation Missile): Guidance and control electronic components utilizes passive board band radar seeker characteristics. Programmable microprocessor. Autopilot platform.

Maverick Missile: Guidance and control electronic components utilizes passive imaging infrared, closed circuit television homing system, and passive laser seeker technologies.

Phoenix Missile: Guidance and control utilizing semi-active radar midcourse assisted by inertial autopilot, and active pulse Doppler radar homing. Digital computer.

Sidewinder Missile: Guidance and control utilizing amplitude modulated / frequency modulated infrared homing head with a closed-cycle cryogenic cooling system. Gyro component overhaul required.

SLAM (Stand-off Land Attack Missile): Guidance and control components included inertial guidance system with a active radar and adds the imaging infrared seeker assembly.

Sparrow Missile: Semi-active radar guidance. Programmable microprocessor to adjust for attack environment.

Standard: Semi-active radar guidance incorporating terminal guidance with digital computer, incorporates inertial guidance in course with command position update (data link).

Launcher and Vehicle Workload Definitions

ATACMS (Army Tactical Missile System): Missile / Launcher pod assembly

Stinger: Training / Support equipment

Avenger: Remote control unit, Avenger control elect (ACE), FLIR, Laser range finder, sight electronics.

ATAS / Avenger: Audio video tracker, launcher electronic assembly, interface electronics assembly.

Dragon: Circuit Card Assembly, Tracker Test Set, Night Tracker, NUTATOR and Signal Comparator.

HAWK: Pulse Acquisition Radar, Battery command post, Launchers, Loaders, Trailers.

Hellfire: Launchers

LCSS: We believe this workload has multiple mobile structures formulating a large complex. Components could range from embedded components to full structures overhaul.

MLRS: Circuit Card Assembly, Keyboard Assembly, Elevation transmission, boom extension actuator, boom control box. Electronic, mechanical, and hydraulic LRU's

Patriot: We believe the workload consist of Patriot Launcher System components line replaceable units (LRUs) that are removed and either shipped to other repair operations off base or overhauled and tested at the depot site. Repair of the basic vehicle structure is required.

Shillelagh: We believe the workload consist of some type tester repair and possibly some components associated with projectile / missile.

TOW II: We believe the workload consist of personnel launcher, and associated embedded optical components.

TOW BVFS: We believe the workload consist of Bradley vehicle launcher and associated embedded optical components.

TOW Cobra: We believe the workload consist of Cobra helicopter launchers and associated embedded optical components.

Other

ATAS Bottles: Argon gas filled cylinder used to move missile fins.

Hill AFB
Tactical Missile Consolidation
Response to BRAC Staff Questions

Question 3. How did we develop the breakout of hours for the DoD guidance and control section (GCS) workload?

Source: Mr. Woody Knobel, LIWG, DSN 777-7679, Mr. Bob Dandoy, LIWP, DSN 777-8048, Mr. Larry Sugihara, FMCB-1, DSN 777-8456, Ms Julia Denman, GAO, weapons system contractors and system program managers, Tactical Missile Consolidation Implementation Plan, May 1994, and associated documents. Workload hours are based on FY99.

Methodology: The workloads originally scheduled for consolidation at Letterkenny Army Depot (LEAD), documented in the *Tactical Missile Consolidation Plan For LEAD, 31 Jan 92*, were evaluated to identify those workloads with GCS. Data obtained from various texts and individuals (e.g., *Jane's Weapon Systems*, Program Managers, and contractors) were used in our analysis to determine workload technologies. A synopsis of our analysis is provided following the Guidance and Control Workload Definitions, Figure 3-1, following the conclusion section. The technology of each GCS workload was determined and compared to technologies available at Hill AFB to assure that the workload could be integrated into the existing maintenance work and infrastructure. As a final check, each of the workloads listed in the 31 January 92 report, was compared to workload data furnished in a February 1995 document provided by the Tactical Missile Consolidation Joint Service Working Group. Each tactical missile workload was in turn reviewed to determine what portion, if any, of that workload was GCS. As an example, the repair workload for Air Force Maverick was listed at 27,700 direct labor hours (DLH) all of which is GCS repair.

From the source data, the amount and location of each workload was calculated and totaled. Current locations for the workloads were determined to be at Hill AFB, UT, Letterkenny Army Depot, PA, Marine Corps Depot, Barstow, CA, contractor facilities, or another depot facility. After determining the workload's current location, the workloads were totaled and the percent of the total GCS workload at each repair location was calculated.

Conclusion: Analysis of the workloads determined that there are over 200K DLH (based on FY99 projections) of GCS repair within the total tactical missile workload of which 53% is presently accomplished at Hill AFB. Skills to accomplish more workload are also readily available at Hill.

GCS Skills.

With years of airborne avionics, tactical missile, and strategic missile experience our personnel have a core knowledge base to ensure rapid stand-up time for any of the GCS repair identified with this workload. While the GCS systems presently assigned to Hill AFB do not require radar technology, extensive radar skills remain at Hill AFB. Many of our F-4 and F-16 radar technicians began their careers on the AIM-4, radar guided tactical missile. Due to their expertise, the vintage system remained a viable Air Force weapon until decommissioned about 1986. Table 3-1 demonstrates, by weapon system, the skills required for each of the guidance systems considered in this workload. The areas marked with "XX" identify the skills required; those with the shaded background are basic skills used by our certified technicians presently assigned to our GCS repair depot.

Weapon System	Basic Electronics (Note 1)	Infrared (Note 2)	Electro-optics (Note 3)	Radar (Note 4)	Gyro (Note 5)	Laser Note 6)	Comments
AMRAAM	XX			XX			Contract
HARM	XX			XX			Contract
Maverick/SLAM (N)	XX	XX	XX		XX	XX	Hill AFB
Maverick (AF)	XX	XX	XX		XX	XX	Hill AFB
Phoenix	XX			XX			LEAD
Sidewinder (AF)	XX	XX			XX		Hill AFB
Sidewinder (N)	XX	XX			XX		Hill AFB
Sparrow (AF)	XX			XX			LEAD
Sparrow (N)	XX			XX			LEAD

Table 3-1. Guidance and Control Systems - Workload Technology Comparisons. Hill AFB provides personnel with over 20 years of GCS specialized experience and over 35 years of missile experience for all of the unique skills required to support the tactical missile consolidation.

(Note 1): Require basic, analog, digital, integrated electronic skills to support numerous weapons including tactical missile systems.

(Note 2): Maverick, Guided Bombs, and Reconnaissance sensor use infrared and imaging infrared technologies.

(Note 3): Maverick, Guided Bombs, and Reconnaissance sensor use electro-optics technology.

(Note 4): F-4, APQ-120, and the F-16, APG-66 and 68 radar systems and their associated components require full range radar repair and test. Full functional testing is completed on automated test equipment and indoor radar ranges.

(Note 5): Sidewinder GCS and numerous navigational components associated with tactical missiles and aircraft systems with related technologies.

(Note 6): Maverick missiles, PAVEWAY I, II guided bombs are some of the systems processed at Hill AFB that integrate laser and laser related technologies

Hill AFB is the present source of repair (SOR) for the Sidewinder, Maverick, and SLAM Missiles for all Services. With the combined 121,000 DLH of Maverick and Sidewinder GCS workload, Hill AFB provides SOR support for 53% of DoD organic tactical missile GCS requirements where LEAD supports 8%. The GCS workload distribution is documented in Table 3-2. The 39% presently at the contractor will transfer to the DoD organic depot during the FY98-99 time frame.

Weapon System	Service	FY99 DLHs (000)	Hill AFB GCS Workload	Letterkenny GCS Workload	Contractor GCS Workload/Transition FY
AMRAAM	AF / Navy	57.4			57.4K / FY98
HARM	AF / Navy	31.6			31.6K / FY98
Maverick	AF	27.7	27.7K		
Maverick / SLAM	Navy	4.5	4.5K		
Phoenix	Navy	2.4		2.4K	
Sidewinder	AF	65.7	65.7K		
Sidewinder	Navy	23.9	23.9K	partial	
Sparrow	AF	9.6		9.6K	
Sparrow	Navy	6.8		6.8K	
Total		229.6	121.8K	18.8K	89.0K
Percent		100%	53%	8%	39%

Table 3-2. Guidance and Control Workload Comparisons. Based on the GCS workload hourly distribution, relocation of the GCS workload to Hill AFB would result in the least disruption to the DoD guidance and control sections workload.

An analysis of the GCS workload demonstrates that most of it is being accomplished at Hill AFB. If the workload continues to be consolidated at LEAD, over 53% will be disrupted with direct impact on customer readiness. In the event that the DoD recommendation to the 95 BRAC is accepted and the work moves again, to Tobyhanna Army Depot (TOAD), the entire DoD organic repair capability will be disrupted. In view of the work presently performed at Hill AFB and Hill's ability to accept the total tactical missile repair workload (including launchers, vehicles, and GCS), the move to TOAD and benefits of the original consolidation at LEAD must be re-evaluated.

GCS Direct Labor Personnel.

The Hill AFB depot has a demonstrated performance with an annual yield of 1646 hours for each of our direct labor technicians. This historically demonstrated yield in tactical missile GCS repair, enhances our forecasting capability and allows operation with fewer personnel than may be required at depot with unproven performance on tactical missile GCS processing. Hill AFB requires 12 additional personnel to accept the GCS workload from LEAD. Conversely, LEAD will require 300 personnel to complete the GCS scheduled for transfer to Tobyhanna Army Depot. Our GCS personnel requirements are demonstrated in Table 3-3 on the following page. The direct labor personnel immediately available for GCS depot operations are identified in the shaded area.

Weapon System	Service	FY99 DLHs (000)	Direct Labor Personnel Required Hill AFB
AMRAAM	AF / Navy	57.4	35 (Transfer FY 98)
HARM	AF / Navy	31.6	19 (Transfer FY 98)
Maverick / SLAM	Navy	4.5	3*
Maverick	AF	27.7	17*
Phoenix	Navy	2.4	1
Sidewinder	Navy	23.9	15*
Sidewinder	AF	65.7	40*
Sparrow	Navy	6.8	4
Sparrow	AF	9.6	6
Total		229.6	140

*Currently Employed

Table 3-3. Guidance and Control Workload Direct Labor Personnel Comparisons. Our demonstrated high annual yield of 1646 DLH has been obtained by continually implementing process improvements reducing end item cost to our customers.

It should be noted that the 90 personnel required to accomplish the current (FY95) DoD tactical missile GCS workload, 78 or 86.7% are trained in their systems and are now employed at Hill AFB.

16
3
65

140
95
65

Guidance and Control Workload Definitions

The scope of the overhaul / repair requirements focus on complete diagnostic testing down to component level. The depth of repair is assumed to be down to components that are listed in the technical order as throw-away. All others are expected to be repaired unless other-wise directed.

AMRAAM (Advance Medium Range Air to Air Missile): Guidance and control electronic components which include inertial autopilot midcourse guidance with active radar homing terminal and digital programmable signal processor allowing software adjustments for target discrimination and to counter electronic counter measures (ECM).

HARM (High-speed Anti-Radiation Missile): Guidance and control electronic components utilizes passive board band radar seeker characteristics. Programmable microprocessor. Autopilot platform.

Maverick Missile: Guidance and control electronic components utilizes passive imaging infrared, closed circuit television homing system, and passive laser seeker technologies.

Phoenix Missile: Guidance and control utilizing semi-active radar midcourse assisted by inertial autopilot, and active pulse Doppler radar homing. Digital computer.

Sidewinder Missile: Guidance and control utilizing amplitude modulated / frequency modulated infrared homing head with a closed-cycle cryogenic cooling system. Gyro component overhaul required.

SLAM (Stand-off Land Attack Missile): Guidance and control components included inertial guidance system with a active radar and adds the imaging infrared seeker assembly.

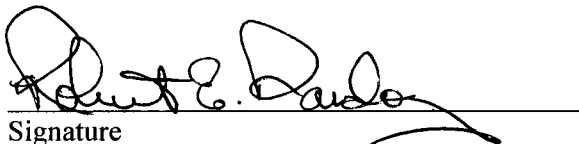
Sparrow Missile: Semi-active radar guidance. Programmable microprocessor to adjust for attack environment.

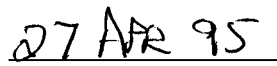
Figure 3-1 Guidance and Control Workload Definitions

The above listed tactical missile systems were determined to contain guidance and control section repair workloads data was primarily obtained from *Jane's Weapon Systems 1985-86*, *The World's Missile Systems, Eighth Edition* Aug 88, and data contained in LEAD's *Status of Tactical Missile Consolidation 3rd Qtr 94*.

CERTIFICATION

I certify the information provided in question 3 of this response is complete and accurate to the best of my knowledge.


Signature


Date

Hill AFB
Tactical Missile Consolidation
Response to BRAC Staff Questions

Question 4. How can we compare Hill AFB with LEAD?

Due to the length of the response, it is divided into two parts, (A) Labor Rates, and (B) Learning Curve.

A. Labor Rate

Source: Ms Connie Penrod, FMCF, DSN 777-7605, Mr. Greg Adams, FMCF, DSN 777-0163, cost data and hours were extracted from the FY94 Budget General Ledger (BGL). Adjustments to cost were based on the budgeted and actual expenses for that category. Actual labor costs in conjunction with adjustments were extracted from the G037G Labor Costing System. Depot Maintenance Operations Indicators Report, 1st Quarter FY93 through 2nd Quarter FY94, pgs. 15, 18, 81, 84. All documentation has been accumulated for review and/or audit.

Methodology: The Hill AFB cost analysis is based on a years worth of cost data. FY94 was used as the base line for the cost analysis. Comparing rates between the Services is often difficult because of how each Service funds for different support functions. Our analysis documents rates from two sources. Rates developed from the Depot Maintenance Operations Indicators Report are based on the average of the last four fiscal quarters reported in the Labor Hour Cost Table, Actual Labor Hour Cost Row.

Material and other associated costs often are included in Depot Maintenance indicators that are a product of workload rather than actual costs. Therefore, we completed a second comparison. The analysis reflects current costs at the Center level and has been accomplished IAW the Defense Depot Maintenance Council Cost Comparability Committees, *Cost Comparability Handbook*, 10 August 1993.

In order to do a more equitable comparison of Hill AFB and LEAD costs, some cost adjustments were made IAW the *Cost Comparability Handbook*, 10 August 1993. These are outlined below.

a. Industrial Health Services have been removed for this analysis. The Air Force identifies this as a funded cost whereas the Army's costs are unfunded.

b. Contract Administration has been removed from the cost analysis for all competed workloads that Hill AFB has won through competition. This is IAW the *Cost Comparability Handbook*, 10 August 1993.

c. Military Non-Depot Time is an AF funded expense. The Army identifies this as an unfunded expense, therefore these costs have been removed for comparison purposes.

d. Downsizing/VERA Costs have been isolated so that the impact to the rate is visible. It is our understanding the Army has excluded these costs so for comparison purposes Hill AFB has excluded them from their rate.

e. HQ AFMC directed profit/loss has not been included in this analysis. Directed profit/loss will affect the rates but will not affect the actual cost.

f. Direct material cost is a function of the assigned workload, rather than the hourly cost, and would be assumed at any depot, therefore, direct material costs were deleted from our rates.

Conclusion: The use of either of the labor rate comparisons demonstrates Hill AFB provides the lowest rate between the depots being considered. Table 4-1 illustrates the Hill AFB average labor rate is based on the latest four quarters of actual performance documented in the Depot Maintenance Operations Indicator Reports.

Table 4-1. Average Labor Rate Comparison

Hill AFB	LEAD	Difference
\$69.27	\$101.33	32.06

The rates in Table 4-1 include costs that are a product of the work assignment rather than an indicator of rate, i.e., direct material, military non-depot time, etc. Our second analysis developed within the parameters of the *Cost Comparability Handbook, 10 August 1993*. The results continue to demonstrate the Hill AFB composite rate remains well below LEAD and the other two Army Depots, Table 4-2.

Table 4-2 Depot Labor Rate Comparison

Hill AFB	LEAD	ANAD	TOAD
\$49.38	\$65.33	\$52.06	\$58.31

Further, by applying the rates to various parts of the program, provides insight into the impact of the labor rate difference.

Buying Power Impact. The impact was computed using the FY94 cost comparability rates for LEAD and Hill AFB to the FY99 projected workload hours. The resulting difference demonstrates Hill AFB customers will increase their buying power by \$13.5M over LEAD.

Productivity Reduction. Hill AFB provides a very low productivity reduction loss that will result in a savings of \$5.7M cost avoidance over three years.

Table 4-3 illustrates the buying power impact to the customer for a full year of production and the impact based on the productivity reduction due to the learning curve.

Table 4-3. Labor Rate Impact.

	94 Base Rate \$/Hr	FY99 Earned Hrs 845.4K - \$	Learning Curve Loss (000) Hrs	Learning Curve Loss \$
LEAD	65.33	55.230M	128.7*	8.408M
Hill AFB	49.38	41.678M	55.4*	2.736M
Hill AFB Savings	15.95	13.552M	73.3	5.672M

*Data extracted from Tables 4-4 and 4-5, which follow.

Extremely competitive labor rates at Hill AFB provide significant customer savings from initial startup throughout the life-cycle of each tactical missile system.

CERTIFICATION

I certify the information provided in question 4A of this response is complete and accurate to the best of my knowledge.

Connie Penrod
Signature

27 Apr 1995
Date

B. Learning Curve

Source: Mr. Philip Paskett, FMCB-1, DSN 777-5264, Mr. Larry Sugihara, FMCB-1, DSN 777-8456. Workload Hours Planned Transition Workload, February 1995, Briefing to Under Secretary of Defense Berteau, February 1993, Section 2, Assumptions, paragraph e, Learning Curve.

Methodology: The impact of the learning curve is a critical part of the workload transfer process. The Hill AFB learning curve analysis is based on the historical productivity reduction standard for the tactical missile consolidation reported in the February 1993 briefing to Under Secretary of Defense Berteau, wherein a 26 percent, 12 percent, and 5 percent reduction was projected for the first three years of full production, respectively. Our analysis further separates the workload by basic skills required. This separation allows a clearer definition of baseline knowledge and the expanded knowledge for the related technology, i.e. guidance and control sections (GCS), launcher, and vehicle skills. Our analysis used the concept of a three tier separation of basic skills: apprentice, junior, and journeyman. The separation of technologies and how our skills separation was applied is provided in the subsequent paragraphs.

GCS Technology (electronic, electro-mechanical, infra-red, laser, optical, radar, etc.): The learning curve required is based on the knowledge level of the personnel to be assigned to the GCS repair, their knowledge of the specific system, and their associate knowledge base. For example, journeyman Air Force Maverick technicians require no learning curve on the Navy Maverick, nor the Marine Maverick. Their knowledge base would also place them with a minimal learning curve on the Hellfire as there is only a single circuit card that is different between it and the Maverick. The GCS specialized skill would further enhance their ability to rapidly learn other GCS processes required for other systems. Their knowledge base would likely place them in the junior level technician rather than the apprentice whose resident skills would be limited to basic electronics with limited or no GCS specific skills.

Launcher technology (electro-mechanical, hydraulic, pneudraulic, pneumatic, etc.): The launchers are separated into several different categories: airborne, land vehicle mounted, and personnel held. The learning curve required is based on the knowledge level of the personnel to be assigned to the launcher repair, their knowledge of the specific system, and their associate knowledge base. Hill AFB is the SOR for over 20,000 hours of airborne launcher workload. The electronic, electrical, and hydraulic skills required in our assigned workload, coupled with our optical technicians, establish our personnel at the high junior or intermediate learning level for this analysis. A similar analysis process was used where journeyman level personnel were assigned to like systems, junior personnel to systems with like skills base required, and apprentice where only the basic knowledge base had been developed.

Vehicles, command centers, and erectors (vehicle/truck mechanics, hydraulics, electro-mechanical, electricians, electronics, radar, etc.): The vehicle portion of this workload is far from being clear cut. Ground based tactical missile systems provide moveable command posts, tracking systems, launchers, and the tactical missile. Maintained as a system the physical separation of the workload has been discouraged by the Army and the associated hours not reported separately. Therefore, the learning curve is more difficult to project. The learning curve required is based on the knowledge level of the personnel to be assigned to the vehicle, command, control and erector repair, their knowledge of the specific system, and their associated knowledge base. Hill AFB personnel are responsible for the repair, maintenance, calibration and testing of the Minuteman and Peacekeeper Missile command and launch control equipment, transporter erector systems, and related support systems, e.g., cooling systems, auxiliary power units, etc. The scope of the work includes the range from intricate components to some of the largest transporter and erectors in DoD. Integration of these skills, including systems electronics, electricians, hydraulic, pneudraulic, pneumatic, heavy mobile mechanic, air conditioning, communications, and sheet metal, to mention a few, places our personnel well within the high junior or intermediate learning level for the

projected workload. Our analysis incorporated the same baseline using technology and like systems as the basis for journeyman, junior, and apprentice levels.

Incorporating the projected productivity reductions of 26, 12, and 5 percent, an apprentice would begin at the 26 percent level, junior at the 12 percent level, and journeyman at the 5 percent or zero level depending on the weapon system. For the analysis, beginning with the base year, each individual will take one year to move from one level of productivity to the next until full output is attained. The higher the skills base, the shorter the learning curve, and the lower the productivity reduction.

Learning Curve Definitions

The learning curve addresses additional hours and costs associated with transferring workloads from one location to another

Twenty-six (26) percent above estimated production hours is based on having minimum basic technology training and some appropriate weapon system understanding. It is assumed that some skills are available but the majority of the mechanics require more training. This is best characterized as apprentice level capabilities.

Twelve (12) percent above estimate production hours assumes high skills in basic technologies and basic understanding of weapon system requirements. Best characterized as junior level capabilities.

Five (5) percent above estimated production hours assume hands on experience with the weapon system or similar systems. All the advanced skills are in place. Specific training on the weapon system is all that is necessary. Best characterized as journeyman level capabilities.

Figure 4-1 Learning Curve Definitions

Conclusion: Due to the broad yet defined skills infrastructure, Hill AFB provides consolidation with rapid stand-up and low productivity loss. Hill AFB learning curve is demonstrated in Tables 4-2 and 4-3. The definitions for the learning curve is provided below.

Examination of Tables 4-3 and 4-4 will show that due to the length of time and diversification of workloads (e.g., missile repair, aircraft radar repair and vehicle repair) assigned to Hill AFB, the time to become proficient with a new workload is greatly reduced. Due to basic training and experience of the work force, they will enter a new workload at the junior or intermediate journeyman level. This results in a much lower learning curve with subsequent savings to the customers. It is projected that a cost avoidance of 73.3K DLH (more than \$5M) would be realized.

Table 4-3. Hill AFB Learning Curve for Base Year and Out-years

Weapon System	Service	Type Work	Technology Code	FY / Transition Hrs	Hill AFB			
					Base Year %/Hrs	1 Out Year %/Hrs	2 Out Years %/Hrs	
AMRAAM	AF/Navy	C	F, K	98 / 52.1	12/6.3	5/2.6	0	
ATACMS	Army	B	L	95 / 18.8	5/1.0	0	0	
ATAS Bottles	Army	S	S	95 / 4.5	0	0	0	
ATAS/Avenger	Army	B	K, J	97 / 12.5	5/0.7	0	0	
Avenger	Army	B	J	95 / 18.0	5/1.0	0	0	
Avenger (Cont)	Army	B	E, K	0	0	0	0	
Dragon	Army	B	J	95 / 18.1	5/1.0	0	0	
HARM	AF/Navy	C	F, K	98 / 28.1	12/3.4	5/1.4	0	
HAWK	Army/USMC	A, B	F, K, N, P	96 / 126.4	12/15	5/6.3	0	
HAWK (Cont)	Army/USMC	A	O	96 / 1.8	5/0.1	0	0	
Hellfire	Army	B	J, S	95 / 14.4	5/0.7	0	0	
Hellfire (Cont)	Army	UNK		0	0	0	0	
Hellfire/Apache	Army	B	J, S	0	0	0	0	
LCSS	Army	A	N, P	97 / 18.4	12/2.2	5/0.9	0	
SLAM	Navy	C	D, G, K, H	96 / 4.5	0	0	0	
Maverick	AF/Navy	C	D, E, H	96 / 50.7	0	0	0	
MLRS	Army	B	J, O, S	96 / 54.7	5/2.7	0	0	
MLRS (Cont)	Army	B	J, O, S	95 / 9.6	5/0.5	0	0	
Patriot	Army	UNK		0	0	0	0	
Patriot (Cont)	Army	A	J, O	95 / 6.3	12/0.8	5/0.3	0	
Phoenix	Navy	C	F, K	95 / 8.6	5/0.4	0	0	
Shillelagh	Army	B	J, O	97 / 8.0	5/0.4	0	0	
Sidewinder	Navy	C	D, K, H	95 / 28.2	0	0	0	
Sidewinder	AF/Navy/Army	C	D, K, H	96 / 65.0	0	0	0	
Sparrow	AF/Navy/USMC	C	F, K	95 / 28.6	5/1.4	0	0	
Standard	Navy	UNK		0	0	0	0	
Standard (Cont)	Navy	UNK		0	0	0	0	
Stinger (Cont)	Army/USMC	UNK		0	0	0	0	
TOW	Army	UNK		0	0	0	0	
TOW (Cont)	Army	UNK		0	0	0	0	
TOW BVFS	Army	B	J, Q	95 / 28.7	5/1.4	0	0	
TOW Cobra	Army	B	J, Q	96 / 40.2	5/2.0	0	0	
TOW/TOWII	Army	B	J, Q	96 / 57.9	5/2.9	0	0	
Subtotal					43.9K	11.5K	0	55.4K
Crane	Navy	R		XX / 38.0	0	0	0	
Red River	Army	B	J, O	XX / 59.0	5/3.0	0	0	
Tobyhanna	Army	B	J, K, O	XX / 58.0	5/2.9	0	0	
Black World	AF	C	K	XX / 13.0	5/0.7	0	0	
TOTAL					50.5K	11.5K	0	62.0K

Type / Technology Code

A	Wheeled Vehicle	F	Radar	K	Advance Electronics	P	Loaders / Trailers
B	Launcher	G	Laser	L	Pod	Q	Optical Components
C	Guidance & Control	H	Gyro / Navigation	M	Support Equipment	R	Fuze Workload
D	Infrared	I	Data Link	N	Mobile Comm. Trailer	S	Hydraulic / Pseudraulic Mechanical
E	Electro Optics	J	Basic Electronics	O	Launcher LRUs	T	Test Equipment

Table 4-4. LEAD Learning Curve for Base Year and Out-years

Weapon System	Service	Type Work	Technology Code	FY / Transition Hrs	Letterkenny Army Depot		
					Base Year %/Hrs	1 Out Year %/Hrs	2 Out Years %/Hrs
AMRAAM	AF/Navy	C	F, K	98 / 52.1	12/6.3	5/2.6	0
ATACMS	Army	B	L	95 / 18.8	0	0	0
ATAS Bottles	Army	S	S	95 / 4.5	0	0	0
ATAS/Avenger	Army	B	K, J	97 / 12.5	5/0.7	0	0
Avenger	Army	B	J	95 / 18.0	0	0	0
Avenger (Cont)	Army	B	E, K	0	0	0	0
Dragon	Army	B	J	95 / 18.1	0	0	0
HARM	AF/Navy	C	F, K	98 / 28.1	26/7.3	12/3.4	5/1.4
HAWK	Army/USMC	A, B	F, K, N, P, I	96 / 126.4	26/32	12/15	5/6.3
HAWK (Cont)	Army/USMC	A	O	96 / 1.8	5/0.1	0	0
Hellfire	Army	B	J, S	95 / 14.4	0	0	0
Hellfire (Cont)	Army	UNK		0	0	0	0
Hellfire/Apache	Army	B	J, S	0	0	0	0
LCSS	Army	A	N, P	97 / 18.4	12/2.2	5/0.9	0
SLAM	Navy	C	D, G, K, H	96 / 4.5	26/1.2	12/0.5	5/0.2
Maverick	AF/Navy	C	D, E, H	96 / 50.7	26/13	12/6.1	5/2.5
MLRS	Army	B	J, O, S	96 / 54.7	5/2.7	0	0
MLRS (Cont)	Army	B	J, O, S	95 / 9.6	0	0	0
Patriot	Army	UNK		0	0	0	0
Patriot (Cont)	Army	A	J, O	95 / 6.3	5/0.3	0	0
Phoenix	Navy	C	F, K	95 / 8.6	12/1.0	5/0.4	0
Shillelagh	Army	B	J, O	97 / 8.0	5/0.4	0	0
Sidewinder	Navy	C	D, K, H	95 / 28.2	12/3.4	5/1.4	0
Sidewinder	AF/Navy/Army	C	D, K, H	96 / 65.0	12/7.8	5/3.3	0
Sparrow	AF/Navy/USMC	C	F, K	95 / 28.6	5/1.4	0	0
Standard	Navy	UNK		0	0	0	0
Standard (Cont)	Navy	UNK		0	0	0	0
Stinger (Cont)	Army/USMC	UNK		0	0	0	0
TOW	Army	UNK		0	0	0	0
TOW (Cont)	Army	UNK		0	0	0	0
TOW BVFS	Army	B	J, Q	95 / 28.7	0	0	0
TOW Cobra	Army	B	J, Q	96 / 40.2	5/2.0	0	0
TOW/TOWII	Army	B	J, Q	96 / 57.9	5/2.9	0	0
Total					84.7K	33.6K	10.4K
							128.7K

Type / Technology Code

A	Wheeled Vehicle	F	Radar	K	Advance Electronics	P	Loaders / Trailers
B	Launcher	G	Laser	L	Pod	Q	Optical Components
C	Guidance & Control	H	Gyro / Navigation	M	Support Equipment	R	Fuze Workload
D	Infrared	I	Data Link	N	Mobile Comm. Trailer	S	Hydraulic / Pneudraulic Mechanical
E	Electro Optics	J	Basic Electronics	O	Launcher LRUs	T	Test Equipment

CERTIFICATION

CERTIFICATION

I certify the information provided in question 4B of this response is complete and accurate to the best of my knowledge.

Philip A. Paskett
Signature

27 April 1995
Date

Document Separator

BRAC 95 Staff Issues With Attachments

**Prepared By
OO-ALC
Hill AFB, UT**

26 Apr 95

ISSUE 1

Readiness.

Readiness concerns for any tactical missile system can most accurately be discussed by the system program manager (SPM), an opportunity that is not available to us either due to the time frame or due to the lack of contact with multi-service managers. Therefore, the discussion is based on the knowledge we have available through our system management assignments and our limited contacts elsewhere.

Readiness is a function of the planned mission requirements and the ability of the SPM to sustain the mission over an extended period of time. The ability to sustain readiness (or sustainment) is a function of the serviceable stores level, the projected usage (training and war time consumption), the annual requirements to maintain a minimum stores level coupled with depot capability and available funds. Extended periods of time without an organic depot often make it necessary to fund contract repair, often forcing the SPM to accept a lower level of support while working within the available budget, or obtain a higher funding level.

For example, the normal annual requirements for the Maverick guidance and control sections (GCS) are approximately 720 units. Of these, 240 are training guided missiles (TGM) to support the command training requirements; the remainder are to maintain the desired stores level with serviceable missiles. During the present directed depot realignment, the Maverick SPM (due to higher interim contract support costs) will not be able to support the stores level nor complete modifications with the available funds. Reliability, maintainability, as well as required operational modifications, will be placed in abeyance for one to two years while the new depot stands-up. Available limited funds will be used to support the 240 training missiles required by Air Combat Command. BRAC did not provide sufficient funds to repair normal storage and field failures which, based on a contractor rough order of magnitude, to cost an estimated \$6-15 million.

The Phoenix SPM established an interim contractor support (ICS) contract with a basic and two single year options, to ensure mission readiness and support the full repair requirement, while the LEAD depot stands-up. The Sparrow SPM continues ICS support to maintain the desired repair level within the available budget. LEAD repair cost for the Sparrow is twice the ICS cost..

Readiness is both a long and short term issue that centers around the ability to economically sustain the mission requirements. In the short term, sustained readiness can be maintained with limited depot down time. However, in the long term, repair of high quality items at the most competitive rate enable the systems managers to maintain a higher level of mission readiness at a lower cost to the taxpayer.

ISSUE 2

Efficiencies.

The 93 BRAC Commission recommendation was to establish a single depot in DoD to provide a Source of Repair (SOR) for all DoD tactical missiles based on economy of scale. The decision was based on consolidating approximately 2M direct labor hours (DLH) of work at Letterkenny Army Depot (LEAD). The benefits of consolidation are recorded in the *1993 Defense Base Closure and Realignment Commission Report to the President*, Chapter 1, Page 1-7, Commission Findings, third paragraph and reads: "... Despite all of these inter-servicing efficiency reducing factors, a recent study by the Army Audit Agency concluded the annual recurring savings to be realized from tactical missile consolidation at Letterkenny would still be equivalent to savings achieved from the proposed realignment, if all missile maintenance workload, including that which is currently assigned to the private sector, transitions to Letterkenny."

The 24 March 1995, Base Visit Report, page 6, Lower Capacity in Comparison to Other Army Reports section, second paragraph, reads, "...Therefore Letterkenny's assigned workload dropped substantially, capacity utilization was low, and average direct labor hour rates increased to the point where Letterkenny was no longer competitive." This documented position supports the Air Force position that consolidating the reduced workload at a depot with a small workload infrastructure is not cost-effective.

Hill AFB provides a viable solution for consolidation of the entire workload. Our industrial base of over 5M DLH is enhanced with the added workload. The Hill AFB base rate will decrease from its present competitive rate of \$49.38/hr to \$43.45/hr. These rates clearly demonstrate the impact and efficiencies of a large scale depot.

Hill AFB provides all the capabilities necessary to consolidate the entire tactical missile workload. This includes facilities, skills and infrastructure. Our skills in guidance and control technologies are among the best in DoD. During FY94, our tactical missile guidance and control section (GCS) technicians completed over 121K DLH of work, 53% of the GCS workload under consideration. We presently have launcher workloads being accomplished at Hill AFB. We repair Maverick launchers and the launch complex associated with the USAF Intercontinental Ballistic Missiles. These workloads have provided our personnel with understanding of launcher theory and design. Only minor weapon specific training would be required to support the launcher and associated component workload contained in the proposed tactical missile consolidation. Our skills on large vehicle maintenance, coupled with the high bay facilities and available real property installed equipment (RPIE), provide excellent capacity and capabilities to facilitate workloads that are part of the tactical missile consolidation, e.g., Patriot, Hawk, etc.

ISSUE 3

Costs - Recurring / Non-Recurring:

In the consolidation of any workload, there are cost factors which are difficult to compare between Services. Some of the factors are one-time (non-recurring) costs such as construction / facility modifications, while others continue throughout the life of the program (recurring). Comparisons between two different depots are quite easy for non-recurring costs, but more difficult for recurring costs. Comparison of recurring costs between two different locations needs to focus on the location's functions and workloads.

By examining the workload to be consolidated, it is easy to identify costs non-recurring (one time cost) that will be incurred to facilitate the workload. Examples of non-recurring costs are, personnel training that will be required, need for real property installed equipment, and projected learning curve efficiencies that are anticipated to occur. Learning curve efficiencies would be driven by the type of mission in place at the location and previous mission assignments.

Identification and comparison of recurring costs are difficult and driven by missions and workloads presently assigned to the locations being compared. Examples of functions that would be affected by recurring costs, e.g., labor rate, labor hours, equipment availability, depreciation costs, general and administrative overhead rates, and infrastructure utilization.

165
60
- 2

Infrastructure (Non-recurring). Due to declining DoD mission workload, there is a surplus of capacity at most DoD depots. Hill AFB has been performing repair of both strategic and tactical missiles for 35 years, and as a result, has a well established modern infrastructure for associated type work. Excess space of approximately 280K ft² is presently available. In addition to basic work areas, all of the required support shops are in place with capacity to accept additional workload. Duplication of these facilities would be a non-recurring cost.

Training / Learning Curve (Non-recurring). Considering the specific technical requirements of the tactical missile guidance and control sections (GCS) and the fact that LEAD personnel require system specific training, it would be expected that training and the associated learning curve would be a critical element in the relocation of the GCS workload to TOAD. While training costs are spread over a period of time, the costs are real to the customer. The Hill AFB tactical missile GCS depot is presently responsible for over one-half of the organic GCS workload in direct labor hours projected for FY99. With expertise developed over 20 years of system specific training and experience, consolidation of the GCS workload to Hill AFB will greatly diminish the training and learn curve impact to the customer. Due to the assigned strategic missile and launcher workloads, similar savings will be realized by consolidating the remainder of the LEAD tactical missile workload.

Real Property Installed Equipment (RPIE) (Non-recurring). Due to the infrastructure required to perform workloads assigned to Hill AFB, a vast amount of real property installed equipment (RPIE) has been obtained and installed. Examples of such equipment vary from a centralized liquid nitrogen storage and distribution system to unique systems such as the computed tomography (CT) facility installed for the ICBM program which is used for tactical missiles. Our tactical missile engineering staff take full advantage of this collocation by using the CT in their analysis processes. Due to prior and present work load assignments, Hill AFB provides some unique RPIE. Included in this list is the recently installed Advance Imaging Radar System (AIRS) (cruise missile) facility evaluation of the systems with stealth characteristics. Such a facility is costly and will be required for the next generation of tactical missiles.

Interim Contractor Support (ICS) (Non-recurring). Consolidation of tactical missile GCS will result in the disruption of repair operations and will require ICS. This cost was not fully addressed during the BRAC 93 decision process and has subsequently been found to be a major cost in the consolidation process. Several systems have identified the need for ICS. The Air Force will require 720 Maverick missiles each year during the transition (estimated 2-3 years). However, due to funding constraints only 240 training guided missiles (TGMs) will be contracted for repair at a cost of \$2-5M per year above and beyond the original depot repair budget. The Phoenix System Program Manager has reported that the Navy released a one-year contract with two one-year options for ICS support.

Transportation (Recurring). The consolidation of tactical missile guidance and control overhaul operations with the specific missile all-up-round (AUR) (a term used to identify the complete missile) assembly operations, reduces the second destination expense associated with routed components. Today, many missile components are routed across the country to different locations, to be overhauled and assembled, incurring additional transportation costs. Hill AFB provides a proven alternative on the Maverick missile that helps reduce customer cost. The GCS and propellant sections are all processed at the same location. When coupled with the Maverick AUR capability, Hill reduces the secondary transportation expense to the customer. Some depots, e.g., Tobyhanna Army Depot, currently do not have the capability to accommodate AUR missile overhaul because of the high explosive components. Any effort to consolidate GCS or other missile sub-component work to a depot which does not have AUR capabilities, will incur additional second destination expenses.

Another issue deals with Air Force missile storage locations. The Air Force requires missiles to be stored in Army "Tier I" storage depots. The closer the missile component repair and missile AUR operations are to the storage depot, the less the transportation costs. Hill AFB can provide missile component repair and AUR capabilities that is located 70 miles from Tooele Army Depot, an Army "Tier I" storage depot. LEAD is rated by the Army as a "Tier II" storage depot in one of their recent studies.

Labor Rates and Standards (Recurring). The labor rates and to some extent, work standards (number of hours it takes to produce a unit) are influenced by the associated infrastructure established at the depot. The fundamental costs that are embedded into base operation support (BOS), e.g., security, transportation, mail service, etc., are shared by numerous organizations. This concept also holds true for industrial support operations, e.g., machining, plating, manufacturing, etc., where many customers, needing the service, reduce the cost for modern capabilities. The more direct labor hours at the depot, the more the basic infrastructure costs are spread, resulting in lower cost to the customer. A excellent example of this concept is the comparison between Hill AFB and Letterkenny Army Depot. Hill's rate is \$49.38 per hour and Letterkenny's rate is \$65.33 per hour (using the *Cost Comparability Handbook*).

The work standards are influenced greatly by personnel skills and process improvement efforts, e.g., modeling and simulation. Having other organizations with similar skills, allows recruitment opportunities with minimum impact to production due to training. Large missile maintenance operations at a depot provides some stability in the missile specific skilled work force allowing long term capabilities and benefits. This concept is best illustrated by the Maverick Missile production operation, which over a few years, reduced the guidance and control work standards by 38%. Modeling and simulation provides non-contact evaluation of current process flows to determine constraints and equipment utilization. Constraints are addressed by changes in processes or adding more equipment. Equipment utilization is helpful to assure only the appropriate amount of equipment is purchased to support the specific need. Tactical missile consolidation at Hill AFB will result in lower cost to the customer.

Management Proficiency. Hill AFB has reengineered the management of its industrial operations. This effort established each Resource Cost Center (RCC) as a small business which allows the shop foreman to operate, and be held accountable for, a cost effective business. By establishing each RCC in this fashion and providing training and staff support where required, we have been able to make significant improvements in our operations. Hourly rates have been reduced by 22%, and the number of hours required to perform maintenance was reduced by 15%. This has resulted in \$11 million in savings over the past two year for our customers. This process is being implemented in all shops. This effort has been so successful that our missile program won one of Vice President Gore's Hammer Awards for reengineering government, one of only 70+ awarded nation-wide to date.



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS OGDEN AIR LOGISTICS CENTER (AFMC)
HILL AIR FORCE BASE, UTAH

27 April 1995

MEMORANDUM FOR Defense Base Closure and Realignment Commission
ATTENTION: Mr. Glenn Knoepfle

FROM: OO-ALC/CD
7981 Georgia Street
Hill AFB UT 84056

SUBJECT: Tactical Missile Consolidation, BRAC Staff Questions

1. Thank you for the opportunity to provide additional information regarding consolidation of the tactical missile workload. Certified responses to your questions are provided, attachment 1. In addition to your questions, we have included discussion papers, attachment 2, for your consideration on several related issues, including readiness, efficiencies, recurring and nonrecurring costs, and management initiatives.
2. Through this additional review, I am more firmly convinced that Hill AFB provides DoD the most viable solution for consolidation of the tactical missile workloads. We stand ready to assist in your analysis and to immediately implement consolidation at Hill AFB.
3. Please address future concerns or issues through our BRAC center focal point, Ms Mary Colemere, OO-ALC/FMCB, (801) 777-5042.


THOMAS L. MINER
Executive Director

2 Attachments:

1. Responses to Questions
2. Issues

Document Separator

Hill AFB
Tactical Missile Consolidation
Response to BRAC Staff Questions

Question 1. What peculiar guidance and control section (GCS) repair equipment is not required if the workload is consolidated at Hill AFB?

Source: Robert Dandoy, LIWP, DSN 777-8048, Rod Peterson, LIWP, DSN 777-8048, personal knowledge of systems, systems data, and contractors.

Methodology: The tactical missile consolidation workloads were evaluated to determine what peculiar GCS technologies are involved and the possible cross utilization of equipment presently in place at Hill AFB. Our effort centered on the Sidewinder, Maverick and Hellfire Missiles. The Sidewinder was evaluated to determine what Navy test equipment would be needed at Hill AFB to process the Navy assets. The Hellfire, and other Hughes systems [e.g., Standoff Land Attack Missile (SLAM)], were evaluated to determine the additional equipment required to stand-up depot repair and test. Hughes is involved with more than ten of the tactical missile systems being consolidated. As an example, the SLAM guidance section repair and test requirements are fully integrated into the Maverick processes using the Maverick equipment. The Hellfire system was also evaluated.

How do you know you can handle it?
Conclusion: The Air Force Sidewinder equipment has been modified for Navy Sidewinder specifications, thus, additional equipment is not required to meet present mission requirements.

The equipment needed to support all configurations (3) of the Maverick Missile is in use at Hill AFB. This same equipment is also used to repair and test the Navy SLAM GCS.

From analysis of the Hellfire workload, it was concluded that only one circuit card in the Hellfire is different from the Maverick GCS. The test equipment for this capability, or a modification of our existing, in-place test stations is needed to augment the Maverick production line. All remaining Hellfire GCS equipment at LEAD or at a contractor facility would not be required. (LEAD does not have any Maverick, SLAM or Hellfire GCS capability.)

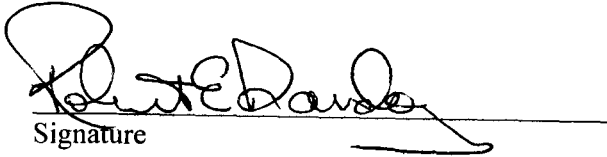
Due to the commonality of tactical missile components, the automated test equipment presently in-service at Hill AFB could be easily programmed to test them, i.e., Navy Sidewinder circuit cards are still being sent to Norfolk to be tested using old AAI-5500 equipment. LEAD's plan is to procure similar equipment used at Hill AFB in the repair of photonics, e.g., the AAI-449 (V5) test set. The cost avoidance could be up to \$1M, since we currently have three like testers available to accomplish the workload.

Equipment for other tactical missile GCS repair either at LEAD (e.g., Phoenix) or contractors' facilities will be required. Further deletion of test and support equipment may be possible once a detailed assessment of requirements is accomplished.

Another area where savings could be realized is with real property installed equipment (RPIE). Examples of equipment in this category would be nitrogen storage/distribution system, clean rooms and vibration test fixtures. Hill AFB presently has such equipment in place with available capacity to accept additional workloads. From the examples cited, it is apparent that considerable total equipment cost savings can be realized by consolidation of tactical missile repair at Hill AFB.

CERTIFICATION

I certify the information provided in question 1 of this response is complete and accurate to the best of my knowledge.


Signature

27 APRIL 95
Date

Hill AFB
Tactical Missile Consolidation
Response to BRAC Staff Questions

Question 2. How many square feet are required to support each of the workloads, how many personnel, and how many direct labor hours (DLH) are associated with each workload?

Source: Kay Hansen, LICT, DSN 777-5642, Marty Simonson, LMS, DSN 775-2120, Tactical Missile Consolidation Plan, May 1994, briefings and minutes from Tactical Missile Consolidation Implementation meetings.

Emery Wood, LIWPS, DSN 777-1124: The tactical missile yield was derived using two financial reports: manpower is extracted from A-G037G-JD1-M1-8JD dated 9/30/94 and direct labor earned hours (DPEH) is extracted from BGL-R03 dated 9/30/94.

Methodology: The direct labor hours projected for the FY99 consolidated workload were obtained from the Tactical Missile Consolidation Workload report, February 1995 and are shown in Table 2-1. These hours were compared with workload data obtained from a variety of contractors, system program managers, and verified with supporting information received via telecon with the General Accounting Office. The baseline hours were refined through a comparison of data from all of the sources.

Facility and process engineers reviewed the *Tactical Missile Consolidation Plan* to determine the number of square feet LEAD required to facilitate each specific workload in conjunction with the projected workload hours. This analysis was used in conjunction with internal modeling techniques to determine the required square feet to be used at Hill AFB which is shown in Table 2-2.

Two yield figures are used: 1) the DoD standard is 1615 hrs/Personnel Equivalent (PE) and is used on both Hill AFB and LEAD workloads, and 2) actual historical yield for Hill AFB's guidance and control section (GCS) workload is 1646 hrs/PE (Table 2-3). The yield of 1646 was derived by dividing duty code hours from the G037G report by 2088 hours (the number of annual hours a person is available for work) to arrive at the number of PEs. The BGL-R03 DPEHs was then divided by the number of PEs.

Conclusion: Hill AFB provides 180,000 ft² of immediately available shop space with an additional (100,000 ft²) expansion capability to accept the tactical missile workload. Our ability to provide extensive expansion capability is demonstrated through our downsizing plan. At Hill AFB, downsizing of over 1 million ft² of facility is projected. All up round (AUR) and storage facilities for munitions are in place at Hill AFB. One building, 2026, was built specifically to handle AUR work associated with the Maverick. This facility was originally designed for a 60,000 missile fleet and has spare capacity available to accept the tactical missile AUR workload. In addition to building 2026, there are several facilities built for Minuteman Missiles AUR being vacated due to the START Treaty and available for other tactical missile use. This capacity allows Hill AFB to accept all AUR work now being accomplished at LEAD along with future expansion capability. Also located adjacent to the AUR facilities are over 200 storage igloos which could be made available for storage of complete tactical missiles and components.

Hill AFB provides a transporter erector repair and overhaul facility of over 141,000 ft² in which the vehicle launcher workload will be integrated. In addition to the 37,084 ft² immediately available, the facility capacity is capable of accepting in excess of 200,000 direct labor hours (DLH) within the collocated support infrastructure. This infrastructure includes, but is not limited to, component repair, tire shop, machine shop, paint booth, sand blast, sheet metal shop, steam clean bay, and paint prep bay.

Hill AFB has a documented investment in the infrastructure supporting both strategic and tactical missiles of over \$1B. Included in the investment are facilities for repair, storage, and test.

In their 24 March 1995 Base Visit Report, the LEAD Community expressed doubt that another depot could provide some of the specific levels of support available at LEAD, including Patriot test and paint capability and explosive sited maintenance facilities. The infrastructure is in-place at Hill AFB to easily overcome to these concerns.

Patriot Test: Hill AFB encompasses almost 7000 acres. Five 28 acre sites have been identified as possible outdoor radar test facilities.

Patriot Paint: Hill AFB has a modern vehicle repair facility that incorporates sandblast and paint booths designed to handle vehicles and equipment up to 14 feet high, 13 feet wide, and 100 feet long. Vehicles too large for our vehicle paint facilities can be accommodated in our F-16 or C-130 paint hangar.

Explosive Sited Facility: Class "C" and greater explosive licensed maintenance facilities are located throughout our maintenance infrastructure. The added workload will be easily placed at Hill AFB.

Our analysis included all the workload originally projected by the 1993 BRAC. Table 2-1 lists the systems, the workload hours, and transfer status (yes or no). The original workload is totaled at the subtotal row. The additional workload for Crane, Red River, Tobyhanna, and Black World, are included in our study, but are not part of the original 1993 BRAC decision. Due to the number of weapon systems deleted from the original study, we have listed them only once in Table 2-1. Our remaining Tables only list the systems considered for transfer. Table 2-4 shows the technologies thought to be present in each of the weapon systems.

Table 2-1. FY99 Direct Labor Hours by Workload

Weapon System	Service				FY99		
		Original DLH (000)	FY99 DLH (000)	Xfer (Y/N)	Vehicle/ Launcher Hrs	GCS Hrs	Other Hrs
AMRAAM	AF/Navy		57.4	Y	0	57.4	0
ANTSQ-73	Army	59.4	0	N	0	0	0
ATACMS	Army		11.1	Y	11.1	0	0
ATAS Bottles	Army		7.3	Y	7.3	0	0
ATAS/Avenger	Army		39.0	Y	39	0	0
Avenger	Army		7.3	Y	7.3	0	0
Chaparral	Army	354.7	0	N	0	0	0
Dragon	Army	44.7	15.4	Y	15.4	0	0
HARM	AF/Navy	19.1	31.6	Y	0	31.6	0
Harpoon	Navy	50.6	0	N	0	0	0
HAWK	Army/USMC	111.4	91.8	Y	91.8	0	0
HAWK (Cont)	Army/USMC		0	N	0	0	0
Hellfire	Army		0	N	0	0	0
Hellfire (Cont)	Army	2.2	0	N	0	0	0
Hellfire/Apache	Army	128.8	9.1	Y	9.1	0	0
LCSS	Army	43.3	18.4	Y	18.4	0	0
Lance	Army	26.5	0	N	0	0	0
Maverick/Navy/SLAM	Navy		4.5	Y	0	4.5	0
Maverick	AF/Navy	88.5	27.7	Y	0	27.7	0
MLRS	Army	134.4	71.3	Y	71.3	0	0
MLRS (Cont)	Army		8.5	Y	0	0	8.5
Patriot	Army	26.3	0	N	0	0	0
Patriot (Cont)	Army	311.1	13.4	Y	0	0	13.4
Phoenix	Navy		2.4	Y	0	2.4	0
Shillelagh	Army		8.0	Y	8.0	0	0
Shrike	Navy/USMC	15.0	0	N	0	0	0
Sidarm	Navy	1.2	0	N	0	0	0
Sidewinder	AF		65.7	Y	0	65.7	0
Sidewinder	Navy	119.8	23.9	Y	0	23.9	0
Skipper	Navy	1.5	0	N	0	0	0
Sparrow	Navy		6.8	Y	0	6.8	0
Sparrow	AF	121.5	9.6	Y	0	9.6	0
Standard	Navy	144.0	0	N	0	0	0
Standard (Cont)	Navy	145.0	0	N	0	0	0
Stinger (Cont)	Army/USMC	47.7	0	N	0	0	0
TOW	Army	222.3	0	N	0	0	0
TOW (Cont)	Army	57.8	0	N	0	0	0
TOW BVFS	Army		35.9	Y	35.9	0	0
TOW Cobra	Army		39.4	Y	39.4	0	0
TOW/TOWII	Army		71.9	Y	71.9	0	0
Walleye	Navy	15.4	0	N	0	0	0
Subtotal		2292.2	677.4		425.9	229.6	21.90
Crane	Navy		38.0	UNK	0	0	38.0
Red River	Army		59.0	UNK	0	0	59.0
Tobyhanna	Army		58.0	UNK	0	0	58.0
Black World	AF		13.0	UNK	0	0	13.0
TOTAL		2292.2	845.4		425.9	229.6	189.9

(Cont): Repaired at Contractor Facility

Local Portion is core

6

This is about half of the Herkenny program

The ability to physically accommodate the consolidated tactical missile workload, 677.4K DLH from LEAD and the 168K DLH from other DoD depots, at Hill AFB is demonstrated in Table 2-2. The 677.4K DLH of workload was obtained from data extracted from the Tactical Missile Consolidation Meeting data February 1995. The 168K hours of workload was identified by the Air Force member of the JSWG in January 1995. The table identifies the amount of shop space required, the proposed building, and in-place Real Property Installed Equipment (RPIE) to accommodate FY99 tactical missile workloads including GCS, launchers, vehicles, and other (gas bottles) items at Hill AFB.

Table 2-2. Facility Requirements/Hill AFB Capabilities

Weapon System	Square Footage		Bldg	Hill AFB Unique Facility Capabilities
	LEAD	Hill AFB		Real Property Installed Equipment (RPIE)
AMRAAM	9,000	9,000	100	(2), RF Screen Room, Radar Range
ATACMS	1,000	1,000	509	
ATAS Bottles	1,000	1,000	100	Nitrogen System/Clean Room
ATAS/Avenger	10,000	10,000	509	
Chaparral	2,000	2,000	5	Nitrogen System/Clean Room
Dragon	2,200	2,200	509	
HARM	13,100	13,100	5	(1), (2), RF Screen Room, Radar Range, Anechoic
HAWK	25,000	12,049	847	Large Paint/Strip Area, High Bay
Hellfire/Apache	3,600	3,600	5	
LCSS	2,000	2,000	847	High Bay Facility
Maverick/Navy/SLAM	0	5,000	5	1, Class IV Laser clean room; 10,000 class
Maverick	10,400	10,000	5	100,000 Clean Room, Controlled Area
MLRS	1,300	1,300	847	Controlled Area, Hydraulics, High Bay
Patriot (Cont)	11,700	11,035	847	High Bay, Outside Radar Range
Phoenix	12,900	12,900	5	(1), Controlled Area, Anechoic Chamber
Shillelagh	2,000	2,000	5	(1), Controlled Area
Sidewinder AF	12,000	12,000	100	(1), 1,000 Class Clean Room, Vibration
Sidewinder Navy	900	900	100	(1), 1,000 Class Clean Room, Vibration
Sparrow Navy	7,500	7,500	100	(1), Anechoic Chamber, in place at Hill AFB
Sparrow AF	7,500	7,500	100	(1), Anechoic Chamber, RF Screen Room
TOW BVFS	4,000	4,000	509	Bridge Crane, Paint Facility, Welding,
TOW Cobra	4,000	4,000	509	Machine Shop, Cable Repair, Bead Blast
TOW/TOWII	9,000	9,000	509	
Crane	0	8,600	509	Explosive Rated
Red River	0	13,000	847	
Tobyhanna	0	12,600	5, 100	Nitrogen System/Clean Room
Black World	0	2,000	1515	
TOTAL	152,100	179,284*		

* Hill AFB has more than 100,000 additional square feet readily adaptable for missile shop space.

(1) Nitrogen System/Clean Room

(2) Raised Floor, 300,000 Controlled Area, Clean Room

(Cont): Repaired at Contractor Facility

The required number of personnel, documented in Table 2-3, are inclusive of and not additive to those presently assigned to the Hill AFB Sidewinder, Maverick, and SLAM depot. The personnel requirements can be augmented with those presently assigned and personnel with electronic skills that will be released as a result of the Technical Repair Center (TRC) realignment through the downsizing of the depot infrastructure. Additional personnel would expect to be transferred with the workload or hired from the local skill pool.

Our personnel figures are computed using the tactical missile consolidation standard 1615 hour annual yield, as directed in TMC Imp Plan. Pg 2-2 para 2.3.2 except for that portion of the workload where we have proven and documented yielded figures, i.e. Tactical Missile GCS workload. Historically, few depots have been able to achieve this goal of 1615 hours, i.e. the Army proposed realigning the tactical missile GCS workload from LEAD to Tobyhanna as part of the 1995 BRAC process. Along with these 229.6K hours, it is reported 300 personnel will transfer to support the workload. Reducing this number by 25 percent to compensate for the possible overhead and base operation support personnel that may have been included in transfer numbers, leaves 225 personnel direct labor employees. Dividing the total workload by the number of direct labor employees results in a projected annual yield of 1020 hours.

However, through our years of tactical missile experience we have perfected our processes, developed a highly skilled workforce, and established competitive labor standards. Our demonstrated actual performance during FY94 ranged between 1576 and 1646 hours (which cover all-up-round to GCS workloads) illustrating our ability to achieve the DoD goal of 1615.

Table 2-3 identifies the number of direct labor personnel required to sustain the workload base identified in the FY99 data provided to the Tactical Missile Consolidation Working Group, February 1995.

Table 2-3 Personnel Requirements

Guidance and Control						
Weapon System	Service	FY99 DLH - K	PEs LEAD*	PEs LEAD***	PEs Hill AFB*	PEs Hill AFB**
AMRAAM	AF/Navy	57.4	36	57	36	35
HARM	AF/Navy	31.6	20	31	20	19
Maverick/SLAM	Navy	4.5	3	4	3	3
Maverick	AF	27.7	17	27	17	17
Phoenix	Navy	2.4	1	2	1	1
Sidewinder	AF	65.7	41	64	41	40
Sidewinder	Navy	23.9	15	24	15	15
Sparrow	AF	9.6	6	9	6	6
Sparrow	Navy	6.8	4	7	4	4
Subtotal		229.6	143	225	143	140
Launcher						
Weapon System	Service	FY99 DLH - K	PEs LEAD*		PEs Hill AFB*	
ATACMS	Army	11.1	7		7	
ATAS Bottles	Army	7.3	5		5	
ATAS/Avenger	Army	39.0	24		24	
Avenger	Army	7.3	5		5	
Dragon	Army	15.4	10		10	
Hellfire/Apache	Army	9.1	6		6	
MLRS	Army	71.3	44		44	
MLRS (Cont)	Army	8.5	5		5	
Shillelagh	Army	8.0	5		5	
TOW BVFS	Army	35.9	22		22	
TOW Cobra	Army	39.4	24		24	
TOW/TOWII	Army	71.9	45		45	
Subtotal		324.2	202		202	
Wheeled Vehicle						
Weapon System	Service	FY99 DLH - K	PEs LEAD*		PEs Hill AFB*	
HAWK	Army/USMC	91.8	57		57	
LCSS	Army	18.4	11		11	
Patriot (Cont)	Army	13.4	8		8	
Subtotal		123.6	76		76	
Other Workload						
Weapon System	Service	FY99 DLH - K	PEs LEAD*		PEs Hill AFB*	
Crane	Navy	38	24		24	
Red River	Army	59	37		37	
Tobyhanna	Army	58	36		36	
Black World	AF	13	8		8	
Subtotal		168	105		105	
TOTAL		845.4	526		526	

(Cont): Repaired at Contractor Facility

*DoD yield of 1615 hrs/PE used for planning purposes.

**Hill AFB actual demonstrated performance yield of 1646 for GCS.

***LEAD personnel identified to be transferred to Tobyhanna Army Depot.

Table 2-4. Repair Technologies Required by Weapon System

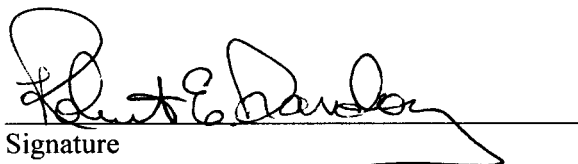
Weapon System	Vehicle/ Launcher	Basic Electronics	Infrared	Electro -optics	Radar	Gyro	Laser	Other
AMRAAM		XX			XX			
ATACMS	XX	XX						
ATAS Bottles								XX
ATAS/Avenger	XX	XX						
Avenger	XX	XX						
Dragon	XX	XX						
HARM		XX			XX			
HAWK	XX	XX						
Hellfire/Apache	XX	XX						
LCSS		XX						
Maverick/Navy/ SLAM		XX	XX	XX		XX	XX	
Maverick/SLAM		XX	XX	XX		XX	XX	
MLRS	XX	XX						
Patriot (Cont)	XX	XX						XX
Phoenix		XX			XX			
Shillelagh	XX	XX						
Sidewinder AF&Navy		XX	XX					
Sparrow AF&Navy		XX			XX			
TOW BVFS	XX	XX						
TOW Cobra	XX	XX						
TOW/TOWII	XX	XX						
Crane								XX
Red River	XX	XX						
Tobyhanna		XX						XX
Black World		XX						XX

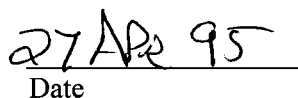
(Cont): Repaired at Contractor Facility

XX indicates the type of technologies embedded in the Weapon System

CERTIFICATION

I certify the information provided in question 2 of this response is complete and accurate to the best of my knowledge.


Signature


Date

Document Separator



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS AIR FORCE MATERIEL COMMAND
WRIGHT PATTERSON AIR FORCE BASE, OH 45433-5745

MEMORANDUM FOR HQ USAF/RTR

18 APR 1995

FROM: HQ AFMC/CEP

4225 Logistics Avenue, Suite 7

Wright-Patterson AFB OH 45433-5745

SUBJECT: Additional USAF BRAC '95 Depot Tennant Information

1. Attached is the information requested by the Base Realignment and Closure Commission staff during our 11 Apr 95 meeting with them. The attached spreadsheets outline authorizations, number of buildings and square feet that tenants occupy at the depots as referenced in 17 Apr 95 HQ AFMC/XP letter, Additional USAF BRAC '95 Depot Information.

2. Please refer questions regarding the responses to Mr. Ralph Daniels, HQ AFMC/CEP, DSN 787-6009, FAX DSN 986-2081.

RALPH A. DANIEL

Chief, Programs Division

Directorate of the Command Civil Engineer

Attachments:

1. Hill AFB Facility Information
2. Kelly AFB Facility Information
3. McClellan AFB Facility Information
4. Robins AFB Facility Information
5. Tinker AFB Facility Information

HILL AFB FACILITY INFORMATION (Exclude Military Family Housing)			
	<u>#BLDGS</u>	<u>SQ FT</u> (Mil Sq Ft)	<u>AUTH</u>
DMBA	59	4.3	4,376
TENANTS	161	4.1	5,572
ALC	<u>787</u>	<u>4.3</u>	<u>5,350</u>
TOTAL	1,007	12.7	15,298

TENANT INFO

		TENANT UNIT WITH 100+ PE'S							
UNIT		CMD	OFFICER	ENL	CIV	TOTAL	BLDG	SF	
388 FIGHTER WING		ACC		195	1908	74	2177	5	67356
								8	1095
								25	38024
								35	47090
								36	17165
								37	23938
								39	29839
								40	19904
								41	5200
								42	17261
								43	21757
								45	49218
								46	3328
								47	104
								48	15862
								49	73
								53	424
								54	4528
								55	4750
								56	8050
								57	384
								58	22046
								62	12113
								118	11200
								119	16003
								120	34689
								295	34858
								524	2960
								585	480
								796	240
								840	18263
								930	5000
								931	5000
								932	2813
								933	2204
								934	5000
								937	1786
								938	3756
								939	1588
								942	5000
								957	5000
								958	5000
								960	6997
								988	9350
								1283	21550
								1316	1804
								1394	1211
								1434	1804
								1435	1647
								1436	1804

TENANT INFO

[illegible]

TENANT INFO

							841	6165
							1544	6781
							1836	2476
							2242	3297
						TOTAL		304140
299 RANGE CONTROL SQ	ANG	10		43		53	1276	13763
299 RCS RERSERVISTS		4	94			*98		
						TOTAL		13763
DFAS FINANCE & ACCT	DFAS	1	8	137		146	1238	4000
							1239	20800
						TOTAL		24800
DISO DEFENSE INFO SERV	DISO	2	52	216		270	880	1248
							891	77297
						TOTAL		78546
HILL SITE DISTRIBUTION	DLA			558		558	273	43044
							507	4270
							800	272623
							810	199270
							816	529
							840	199169
							843	203582
							845	533117
							849	390045
							850	565959
							875	2000
							915	32729
							927	518
						TOTAL		2446855
						GRAND TOTAL FOR TENANTS 100+		3,787,214
						TENANT UNITS WITH LESS THAN 100 PE'S		
A. TOTAL	NUMBER OF TENANT ORGANIZATIONS WITH LESS THAN 100 ASGN:						25	
B. TOTAL	NUMBER OF BUILDINGS OCCUPIED:						41	
C. TOTAL	SQUARE FOOTAGE OCCUPIED:						340,875	
D. TOTAL	NUMBER OF PERSONNEL ASSIGNED AS OF 28 OCT 84:						353	

KELLY AFB FACILITY INFORMATION (Exclude Military Family Housing)			
	<u>#BLDGS</u>	<u>SQ FT</u> <u>(Mil Sq Ft)</u>	<u>AUTH</u>
DMBA	92	4.8	6,028
TENANTS	182	6.8	12,674
ALC	253	3.9	6,592
TOTAL	527	15.5	25,294

SA-ALC			
KELLY AFB, TEXAS			
UNIT/ORGANIZATION TITLE	FACILITIES ASSIGNED		MANPOWER AUTHORIZATIONS
	BLDGS	SF	TOTAL
OL AF CIVIL ENGINEER SUPPORT AGE	1	180,530	25
412 LOGISTICS SUPPPORT SQ	1	870	6
DET 107, 1 FEILD INVESTAGATIONS R	2	5,579	16
OL DET 405, 301 TRAINING SQ	1	300	2
US CORP OF ENGR	1	3,188	16
DEFENSE COURIER SERVICE	1	3,600	5
DET 410, AF AUDIT AGENCY	1	4,378	29
OL AF AUDIT AGENCY	1	945	7
DET 1, 615 AIR MOBILITY OPS GP	1	3,414	78
OL, 615 AIR MOBILITY OPS GP	1	150	1
DOD IG	1	3,530	10
SMALL BUSINESS ADM	1	1,202	4
DRMO	10	379,003	87
SOFTWARE DEVELOPMENT AGENCY	1	7,594	31
DEFENSE PRINTING SERVICE/SWA	1	48,394	50
GPO	1	978	
UNICOR	1	502	1
GAO.	1	470	6
LACKLAND TNG CTR	1	70,000	40
IAAFA	6	25,397	59
DOD OCI	1	1,643	6
DET 5, 57 AES	1	1,700	
DET 12 CRYPTO CTR	1	6,400	13
AAFES	5	29,097	30
4525 COMBAT LOGISTICS SUPPORT S	1	372	4
TOTAL	44	781,237	526

SA-ALC						
KELLY AFB, TEXAS						
UNIT/ORGANIZATION TITLE	FACILITIES ASSIGNED		MANPOWER AUTHORIZATIONS			
	BLDG #	SF	OFFICER	ENLISTED	CIVILIAN	TOTAL
838 EIS	3215	1,414	4	387	21	412
	3422	2,888				
	3638	1,587				
	3758	22,818				
	3820	40,535				
TOTAL		69,242				
DFAS DENVER	171	9,220				
	1621	1,792				
	1623	18,600				
SUB TOTAL		29,612				
DFAS COLUMBUS	3448	8,613				
SUB TOTAL		8,613				
TOTAL DFAS		38,225	2	8	170	180
433rd AIRLIFT WING						
82D	180	6,637				
	880	5,022				
SUB TOTAL		11,659				
307CES	3645	78				
	3757	10,817				
	3761	18,367				
	3753	90				
	3764	140				
	3767	140				
	3768	22,485				
	3786	22,836				
	3787	1,216				
SUB TOTAL		76,169				
433D	180	3,319	412	3110	670	4192
	809	2,542				
	814	22,973				
	817	2,856				
	825	17,000				
	826	115,000				
	828	25,024				
	829	50,480				
	832	968				
	835	24				
	836	113				
	874	16,546				
	886	800				
	889	232				
	891	294				
	894	7,687				
	898	27,000				
	907	24,343				
	908	17,708				

Page 2

SA-ALC						
KELLY AFB, TEXAS						
UNIT/ORGANIZATION TITLE	FACILITIES ASSIGNED		MANPOWER AUTHORIZATIONS			
	BLDG #	SF	OFFICER	ENLISTED	CIVILIAN	TOTAL
DECA(WESTERN)	3030	14,495				
AFNEWS	3107	40,000	8	78	73	159
DLA	1414	48,418	31	0	695	726
	1530	207,000				
	1533	344,337				
	1534	492,647				
	1536	285,841				
	1537	381,747				
	1538	479,684				
	1547	1,153				
	1552	116,436				
	1554	163,091				
	1558	9,896				
	1560	167,307				
	1562	95,440				
	1564	58,612				
	1566	60,000				
	1572	136,475				
	1573	39,847				
	1574	162,991				
	1575	72,186				
	1576	163,394				
	1578	18,181				
	1579	18,181				
	1581	58,465				
	1589	6,594				
	1590	9,893				
	1595	43,458				
	3451	24				
	3820	134,479				
	3822	176,053				
	3824	176,306				
	3828	176,324				
	3830	153,156				
TOTAL:		4,455,616				
HQ AIA	1004	3,200	478	2142	846	3466
	1005	3,000				
	2000	332,242				
	2001	3,199				
	2003	8,603				
	2004	1,932				
	2005	11,794				
	2006	11,794				
	2007	76,316				
	2008	3,730				
	2012	25,299				
	2019	8,994				
	2024	1,250				
	2058	60,000				
	2060	2,700				
	2081	5,700				

SA-ALC						
KELLY AFB, TEXAS						
UNIT/ORGANIZATION TITLE	FACILITIES ASSIGNED		MANPOWER AUTHORIZATIONS			
	BLDG #	SF	OFFICER	ENLISTED	CIVILIAN	TOTAL
	2062	10,000				
	2065	5,000				
	2067	8,689				
	2068	150				
	2087	8,148				
	2088	8,253				
	2089	2,400				
	2090	3,960				
	2095	1,596				
	3217	1,485				
	3644	1,534				
	3770	558				
SUB TOTAL:		611,526				
REGIONAL SIGNET OPS CTR			34	1274	40	1348
TOTAL		611,526				
GRAND TOTAL		5,989,473	1096	8096	2954	12146

MCCLELLAN AFB FACILITY INFORMATION (Exclude Military Family Housing)			
	<u>#BLDGS</u>	<u>SQ FT (Mil Sq Ft)</u>	<u>AUTH</u>
DMBA	107	3.6	5,109
TENANTS	100	4.2	1,837
ALC	<u>267</u>	<u>3.8</u>	<u>5,218</u>
TOTAL	<u>474</u>	<u>11.8</u>	<u>12,164</u>

INSTALLATION WORK SHEET

McCLELLAN AFB, CA

PURPOSE: To identify each tenant unit on base and for each, specify the number of personnel, number of buildings and total square footage occupied. For tenants with populations greater than 100 specify the bldg # and area of each facility occupied.

SOURCE: Manpower figures were obtained from Nickie Barbee of the base Manpower Office, DSN 633-2876. Real Property figures were obtained from Bob Almes, the Base Real Property Officer at DSN 633-6360.

METHOD: The real property records were sorted by organization code and building number with space subtotals for each organization. Figures from the base manpower office were used to determine which organizations had populations in excess of 100. Itemized listings of associated buildings occupied were tabulated for these organizations.

CONCLUSION: TABLES 1 and 2

TABLE 1
SM-ALC TENANTS
WITH POPULATIONS LESS THAN 100
as of 17 Apr 95

TENANT ORGANIZATION	SYMBOL	ORG CODE	# OF BLDGS	AREA (SF)	POP
Commissary	DECA	670	1	88,000	66
Army Air Force Exchange Service	AAFES	686	7	92,610	70
Area Defense Council	ADC	717	1	891	3
Defense Reutilization Marketing Office	DRMO	765	11	320,067	75
510th Field Training Detachment	510FTD	790	2	21,305	8
US Government Accounting Office	US-GAC	795	1	6,237	7
4th Air Force	4AF	825	2	51,824	56
Federal Aviation Administration	FAA	835	2	12,713	79
604th Combat Log Support Squadron	604CLSS	845	3	12,900	4
Air Force Audit Agency	AFAA	850	3	2,673	23
Civil Air Patrol	CAP-A	852	2	6,556	4
SAFE / McClellan Credit Union	LVCU/AFCU	855	1	6,450	21
Air Force Office of Special Investigations	AFOSI	860	4	118,769	16
940th Civil Engineering Squadron	940CES	868	1	6,000	4
Det 1437 Navy Printing Service	DET1437	873	4	35,837	51
364th Recruiting Sq	364th	807	1	8,000	26
US Postal Service	USPS	970	1	3,820	2

TABLE 2
SM-ALC TENANTS
WITH POPULATIONS GREATER THAN 100
as of 17 Apr 95

TENANT ORG	SYMBOL	POP	# OF BLDGS	BLDG #	BLDG AREA (SF)	TOTAL AREA (SF)
Def Fin and Acnfg Serv	DAO-DE	133	1	209	29,399	29,399
936 Elec Inst Sq	938 EIS	310	1	686	50,588	50,588
Def Info Sys Office	DISO-UMZ	141	1	600	33,699	33,699
Def Dist McClellan	DDMC	567	13	650	167,715	2,692,731
				651	168,521	
				670	402	
				671	405	
				731	600	
				778	400	
				781	59,740	
				783	1,410,509	
				785	66	
				786	720,000	
				787	245	
				788	164,000	
				789	128	
Coast Guard A/S	CGAS	170	8	1032	12,073	134,800
				1100	8,000	
				1101	368	
				1102	4,565	
				1105	800	
				1106	99,714	
				1107	4,800	
				1108	4,480	
Tech Ops Div	TOD	372	10	626	168,093	
				629	1,200	
				1068	1,875	
				1077	72	
				1078	1,875	
				1079	264	
				1080	120,000	
				1081	882	

				1083	984	
				1087	746	295,991
940th Air Ref Wing	940ARW	144	19	829	1358	
				876	861	
				877	8495	
				878	7649	
				922	25782	
				1016	3200	
				1017	4480	
				1022	12073	
				1025	1832	
				1026	2560	
				1027	12073	
				1028	12073	
				1030	2560	
				1033	12073	
				1042	15160	
				1043	2769	
				1046	7983	
				1048	28659	
				1071	23232	184,872

I certify that the above information is accurate and complete to the best of my knowledge and belief.

Preparer: Mike Ouellette Date: 18 Apr 95
 Mike Ouellette, 77CEG/CERR, DSN 633-6688

I certify that the above information is accurate and complete to the best of my knowledge and belief.

MAJCOM Reviewer: _____ Date: _____

ROBINS AFB FACILITY INFORMATION (Exclude Military Family Housing)			
	<u>#BLDGS</u>	<u>SQ FT</u> <u>(Mil Sq Ft)</u>	<u>AUTH</u>
DMBA	86	3.6	6,240
TENANTS	136	4.7	5,121
ALC	<u>214</u>	<u>3.5</u>	<u>5,410</u>
TOTAL	572	11.8	16,771

TENANTS WITH MORE THAN 100 AUTHORIZATIONS FOR FY 95/4

Unit/Organization Title	Facilities Assigned		FY 95/4 Auth
	Bldg No	Sq Ft	
5 Combat Comm Group (ACC)	315	113	891
	614	12,617	
	655	2,000	
	657	9,000	
	658	20,064	
	793	240	
	948	16,420	
	949	8,783	
	950	4,255	
	951	7,112	
	958	384	
	959	1,750	
	963	60,611	
	964	840	
	965	3,000	
	1350	2,400	
	1351	2,240	
	1353	2,448	
	1364	33,000	
	1371	3,200	
	1372	3,200	
19th Air Refueling Wing (AMC)		1,835	584
	10	1,800	
	12	16,073	
	24	199	
	48	19,631	
	762	493	
	2052	17,750	
	2066	29,930	
	2067	10,232	
	2068	817	
	2069	527	
	2075	1,408	
	2076	33,238	
	2077	1,256	
	2078	35,946	
	2079	47,263	
	2080	6,259	
	2081	20,463	
	2082	21,183	
	2085	120	
	2088	4,800	
HQ Air Force Reserve (AFRES)	210	128,558	1,265
	220	58,082	

TENANTS WITH MORE THAN 100 AUTHORIZATIONS FOR FY 95/4

	660	233	
	760	5,732	
	763	5,297	
	2200	1,245	
Base Exchange (AAFES)	650	10,737	189
	657	11,928	
	914	43,850	
Base Schools (DOD)	988	62,604	135
	990	1,792	
	991	1,550	
	992	1,487	
	995	2,501	
	996	2,501	
	2802	55,726	
	2804	2,295	
	3004	4,032	
Defense Finance and Actg Svc (DOD)	301	12,375	138
Defense Info Systems Agency (DOD)	228	70,610	318
	300	23,956	
Distribution Depot (DLA)	140	4,145	768
	156	1,725	
	253	416	
	301	51,484	
	333	43,200	
	340	78,333	
	341	632	
	346	120	
	351	105,210	
	364	53,981	
	365	172,473	
	366	149,766	
	367	157,656	
	368	319,131	
	376	353,211	
	380	564,667	
	381	24	
	384	24	
	385	653,704	
	602	29,500	
	606	3,420	
	623	50	
	641	311,579	
	660	160,045	
	979	3,713	

TENANTS WITH MORE THAN 100 AUTHORIZATIONS FOR FY 95/4

	981	80	
	982	2,625	
	1611	10,800	
	1612	10,800	
	1613	10,800	
	1614	10,800	

TINKER AFB FACILITY INFORMATION (Exclude Military Family Housing)			
	<u>#BLDGS</u>	<u>SQ FT</u> (Mil Sq Ft)	<u>AUTH</u>
DMBA	59	4.3	6,201
TENANTS	190	5.9	9,338
ALC	<u>254</u>	<u>3.9</u>	<u>7,080</u>
TOTAL	503	14.1	22,619

<u>ORGANIZATION</u>	<u>BUILDING #</u>	<u>SQUARE FOOTAGE</u>
Defense Logistics Agency	1	247,134
	3	261,238
731 civilian	10	321,394
	11	80,000
	16	45,378
	18	300,566
	26	5,680
	412	157,637
	416	415,414
	469	88,000
	503	1,600
	504	1,320
	506	408,244
	508	480
	510	357,157
	513	4,200
	1022	8,000
	1077	3,728
	1113	32,800
	1118	64,000
	1119	64,000
	1134	16,599
	1135	12,575
	1139	2,198
	1140	18,611
	1145	29,458
	1146	7,392
	2703	192,985
	3001	31,234
	3705	389,764
	3765	9,360
	3766	5,600
	3769	5,600
Total		3,589,346
Defense Reutilization and Marketing Office	801	64,000
	802	23,625
	803	4,680
	804	3,000
	3726	8,040
	3728	8,040
	3770	11,506
	3783	2,400
Total		125,291
507 Refueling Group (AFRES)	240	4,112
	1011	981
239 CIVILIANS	1030	99,184
	1040	240
	1041	7,100
	1043	16,710

ORGANIZATION	BUILDING #	SQUARE FOOTAGE
(507 Refueling Group (AFRES)	1044	113
(Cont.)	1045	47
	1047	6,000
	1048	15,181
	1058	1,870
	1066	6,700
	1067	11,460
	1068	19,775
	1069	250
	1070	13,016
	1071	6,840
	1072	4,600
	1075	7,194
	1080	500
	1084	677
	1085	765
	1126	1,800
	3811	1,080
	5801	4,767
	5910	1,000
Total		236,634
STRATCOM Support (US Navy)	816	300
	817	1,600
193 OFF	819	300
865 ENL	820	234,000
34 CIV	825	51,210
	829	1,750
1092 TOTAL	830	87,426
	847	3,440
	848	3,780
Total		383,806
4 OFF. } 12 ENL. } 126 0 CIV }	72 Aerial Port Squadron	260
	Total	4,600
38 Engineering Installation Wing	201	52,382
	4001	2,195
183 OFF	4003	1,222
465 ENL	4004	11,798
631 CIV	4005	3,117
	4008	7,767
1279 Total	4009	3,585
	4012	10,989
	4013	8,278
	4014	6,442
	4015	5,710
	4016	5,710
	4017	5,710
	4018	5,710
	4019	5,710
	4020	5,710

<u>ORGANIZATION</u>	<u>BUILDING #</u>	<u>SQUARE FOOTAGE</u>
38 Engineering Installation Wing	4021	5,710
	4022	5,710
	4023	3,596
	4024	5,710
	4025	5,710
	4026	5,710
	4027	5,710
	4028	1,655
	4029	19,220
	4030	3,179
	4032	900
	4038	2,688
	4057	6,528
	4068	16,000
	4069	5,600
	4077	2,500
Total		238,161
3rd Combat Communication Group	902	6,400
	903	4,800
	904	4,800
	905	4,800
	990	2,400
	994	2,400
	1001	8,067
	1002	17,651
	1010	15,737
	1013	417
	1014	7,500
	1016	3,718
	1064	3,200
	1079	720
	4031	3,621
	7001	26,800
	7003	25,685
	7005	4,190
	7006	2,500
	7007	4,000
	7008	960
	7009	480
	7010	480
	7011	480
	7012	1,440
	7013	4,000
	7014	5,000
	7028	3,439
	7035	3,600
	7036	3,600
	7037	2,752
	7038	5,000
	7039	2,400
Total		183,037

33 OFF
 987 ENL
 11 CIV
 1031 TOTAL

ORGANIZATIONBUILDING #SQUARE FOOTAGE

5 OFF
5 ENL
108
118 TOTAL

Commissary Agency
Total

477

102,795
102,795

Defense Information Systems

1

530

1 OFF

101

6,074

29 ENL

3001

80,003

220 CIV

3900

96,000

250 TOTAL

Total

182,607

15 OFF
77 ENL
8 CIV
100 TOTAL

3549 US Recruiting Squadron
Total

1

5,804
5,804

552 AWACS

1 (CKWT)

4

1 (VXQA)

4

2 (CKWT)

2

2 (VXQA)

8

202

12,406

205

240

215

31,452

217

2,016

219

363

220

31,276

224

25,048

230

420,885

233

112

235

786

247

6,426

280

19,427

282

66,255

283

11,974

284

38,502

285

6,000

289

38,512

296

58,500

766

3,300

963

1,176

970

900

976

39,627

977

500

985

4,863

986

8,800

989

61,801

Total

891,147

Defense Finance/Accounting
Service

1

16,716

Total

16,716

1 OFF

11 ENL

130 CIV

142 TOTAL

TENANTS WITH LESS THAN 100 PERSONNEL AUTHORIZED:

<u>ORGANIZATION</u>	<u># BUILDINGS</u>	<u>TOTAL SF</u>
11th OSI District Office	3	7,195
AF Audit Agency	1	4,520
AF Civil Air Patrol Liaison Office	1	5,704
USAF Judicial Area Defense Counsel	1	1,462
Naval Satellite Engineering Group	2	3,164
Det 7 AF Global Weather Center	1	4,490
Defense Printing Office	1	22,497
Material Systems Group	1	15,466
Corps of Engineers	2	6,960
TOTAL	13	71,458

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BRAC 95
CERTIFICATION WORKSHEET
TENANT QUESTIONNAIRE

INSTALLATION: OC-ALC, TINKER AFB, OK.

PURPOSE: TO DOCUMENT AND CERTIFY DATA PROVIDED FOR THE TENANT QUESTIONNAIRE. INCLUDES MANPOWER DATA ONLY.

NARRATIVE: IDENTIFIES MANPOWER IN TWO CATEGORIES: THOSE TENANTS WITH AN AUTHORIZED POPULATION GREATER THAN 100 AND THOSE TENANTS WITH AN AUTHORIZED POPULATION LESS THAN 100.

SOURCE: EXTENDED UNIT MANPOWER DOCUMENT - MANPOWER FILE PART A
30 MARCH 1995 - BASELINE OF FY95.

CONCLUSION: THE DATA PROVIDED REPRESENTS THE TOTAL MANPOWER AUTHORIZATIONS RELATED TO AIR FORCE AND NON AIR FORCE TENANTS.

I certify that the above information is accurate and complete to the best of my knowledge and belief.

Preparer Alan S. Bane Date: 18 APR 95

Reviewer Edna S. McDaniel Date: 18 Apr 95

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OCALC TENANTS WITH MORE THAN 100 AUTHORIZATIONS

ORGANIZATION	OFFICER	ENLISTED	CIVILIAN	TOTAL
DLA	0	0	731	731
507 REFUELING GROUP (AFRES)	0	0	239	239
STRATCOM SUPPORT (US NAVY)	193	885	34	1092
72 AERIAL PORT SQ (AFRES)	4	122	0	126
38 ENGINEERING INSTAL WING	183	485	631	1279
3rd COMBAT COMM GROUP	33	987	11	1031
COMMISSARY AGENCY	5	5	108	118
DEFENSE INFO SYST AGENCY	1	29	220	250
3549 US RECRUITING SQ	15	77	8	100
552 AWACS	787	3029	100	3926
DEFENSE FIN/ACCOUNT SERV	1	11	130	142
TOTAL	1232	5590	2212	9034

OCALC TENANTS WITH LESS THAN 100 AUTHORIZATIONS

9
THERE ARE ~~9~~ OTHER TENANTS THAT HAVE A TOTAL OF 304 AUTHORIZATIONS
LOCATED AT OCALC.

Document Separator

EXECUTIVE CORRESPONDENCE TRACKING SYSTEM (ECTS)

950516-12

FROM: HANSEN, JAMES U.	TO: DIXON
TITLE: REP. (UT)	TITLE: CHAIRMAN
ORGANIZATION: U. S. CONGRESS	ORGANIZATION: DBRC
INSTALLATION (S) DISCUSSED: OGDEN AIR LOGISTIC CENTER	

OFFICE OF THE CHAIRMAN	FYI	ACTION	INT	COMMISSION MEMBERS	FYI	ACTION	INT
CHAIRMAN DIXON				COMMISSIONER CORNELLA	✓		
STAFF DIRECTOR	✓			COMMISSIONER COX	✓		
EXECUTIVE DIRECTOR	✓			COMMISSIONER DAVIS	✓		
GENERAL COUNSEL	✓			COMMISSIONER KLING	✓		
MILITARY EXECUTIVE				COMMISSIONER MONTOYA	✓		
				COMMISSIONER ROBLES	✓		
DIR./CONGRESSIONAL LIAISON		✓		COMMISSIONER STEELE	✓		
DIR./COMMUNICATIONS				REVIEW AND ANALYSIS			
				DIRECTOR OF R & A	✓		
EXECUTIVE SECRETARIAT				ARMY TEAM LEADER			
				NAVY TEAM LEADER			
DIRECTOR OF ADMINISTRATION				AIR FORCE TEAM LEADER			
CHIEF FINANCIAL OFFICER				INTERAGENCY TEAM LEADER	✓		
DIRECTOR OF TRAVEL				CROSS SERVICE TEAM LEADER		✗	
DIR./INFORMATION SERVICES							

TYPE OF ACTION REQUIRED

✓	Prepare Reply for Chairman's Signature		Prepare Reply for Commissioner's Signature
	Prepare Reply for Staff Director's Signature		Prepare Direct Response
X	ACTION: Offer Comments and/or Suggestions	✓	FYI

Subject/Remarks:

FORWARDING LETTER UTAH DELEGATION SENT TO JAMES KLUGH SUPPORTING PROPOSAL TO CONSOLIDATE ALL TACTICAL MISSILE DEPOT MAINTENANCE TO HILL AFB.

Due Date: 950518

Routing Date: 950516

Date Originated: 950512

Mail Date:

JAMES V. HANSEN
1ST DISTRICT, UTAH

COMMITTEES:
NATIONAL SECURITY
RESOURCES

SELECT COMMITTEE ON
INTELLIGENCE

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RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-4401
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(801) 825-5677
(801) 451-5822

435 EAST TABERNACLE
SUITE 301
ST. GEORGE, UT 84770
(801) 628-1071

Congress of the United States
House of Representatives
Washington, DC 20515-4401

May 12, 1995

The Honorable Alan Dixon
Chairman, Defense Base Closure and
Realignment Commission
1700 North Moore Street, Suite 1425
Arlington, VA 22209

Please refer to this number
when responding 950516-12

Dear Chairman Dixon,

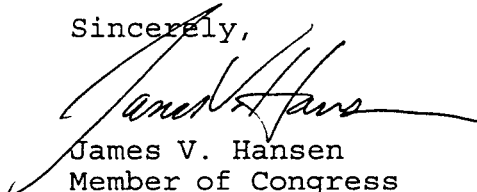
I wanted to provide you, and your fellow Commissioners, a copy of a letter sent by members of the Utah Congressional Delegation to James Klugh, Deputy Under Secretary of Defense (Logistics). It expresses our full support for the proposal to consolidate all tactical missile depot maintenance to the Ogden Air Logistics Center (ALC), Utah.

I believe consolidation of this workload can provide tremendous readiness and cost benefits to the Department of Defense. I also believe, as I did during BRAC 1993, that the best choice for this consolidation is Hill AFB.

I have looked carefully at this proposal and was very disturbed to see that your staff (in the May 10th hearing) apparently accepted the inflated price tag of \$220 million submitted by representatives of the Army and LEAD. The data provided by Hill AFB estimated the costs at only \$28 million. One glaring problem that seems to drive this inflation is the added requirement to provide over 1 million sqft of missile storage. This is simply not the case, Hill AFB and the surrounding DoD ammunition depots provide more than adequate storage space to meet the workload. In addition, missiles would continue to be stored all over the country, as they are now and would continue to be, under any BRAC scenario. The other major requirement, to relocate over 900 employees, does not reflect the reality of a downsizing, and experienced workforce already in place at Hill AFB.

I urge you to take a hard look at these recommendations. I firmly believe if the criteria is military value and the best economic value for the American people, then the only choice for consolidation of this vital workload is the Ogden ALC.

Sincerely,


James V. Hansen
Member of Congress

JAMES V. HANSEN
1ST DISTRICT, UTAH

COMMITTEES:
NATIONAL SECURITY
RESOURCES
SELECT COMMITTEE ON
INTELLIGENCE

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House of Representatives
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(801) 628-1071

May 2, 1995

The Honorable James Klugh MG (Ret)
Deputy Under Secretary of Defense (Logistics)
Room 3E114 - The Pentagon
Washington, DC 20301

Dear Deputy Under Secretary Klugh,

We are writing to you as members of the Utah congressional delegation to express our strongest possible support for the proposal to consolidate all tactical missile depot maintenance workload to the Ogden Air Logistics Center (ALC), Utah.

As you know, this proposal was presented to the BRAC Commission by our community support group Hill/DDO 95. The Utah congressional delegation is not endorsing the Department of Defense's decision to close Letterkenny Army Depot. However, if this decision is supported by BRAC 95, we believe the Department of Defense owes it to the American taxpayer to honestly explore the most cost effective and efficient redirection of this vital workload. We believe that consolidation of all tactical missile workload is still in the best interest of the military and the country. The only single site capable of accepting this consolidation is Ogden ALC.

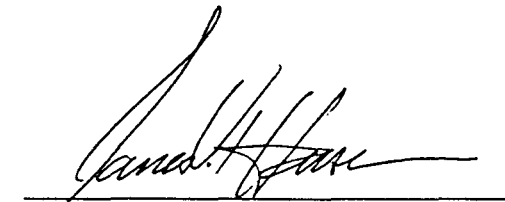
If you look at the Department's own data, as well as the opinions of the GAO and Joint Cross-Service Working Group, the choice is clear. Ogden has the facilities, floor space, trained workforce, current workload, explosive storage and hot pit areas and proven experience to complete the consolidation on time, within the current budget and without degrading the readiness of our Armed Forces. The combination of a long history of missile work at Hill AFB and Ogden ALC, the proximity to a Tier I munitions depot at Tooele and the Utah Test and Training Range, and the working relationship in place with major industrial suppliers like Thiokol and Alliant Tech makes the Ogden ALC an ideal strategic location for this consolidation. We have been told that both the GAO and the BRAC staff are looking favorably at this proposal. We only ask that you take a hard look at their recommendations.

It is our understanding that you will be meeting on Friday, May 5, with Under Secretary of the Air Force DeLeon and General Mike Pavich (Ret) to discuss this issue. It is our firm belief that you will find this option provides a win-win situation for the Services, the Department of Defense, and the nation. You can be assured that the Utah congressional delegation will provide all possible support for this initiative and that the people of Utah stand ready to serve as they have at Hill Field for over 50 years.

Sincerely,


Senator Orrin Hatch


Senator Bob Bennett


Congressman James Hansen


Congresswoman Enid Waldholz

Document Separator

EXECUTIVE SUMMARY

Introduction. During the 1993 Base Realignment and Closure (BRAC) process, a decision was made to consolidate all tactical missile guidance and control section (GCS) maintenance at one location, reaffirming the recommendation of interservice consolidation in DMRD 908. This decision was based on extensive analysis and led to the eventual plan to consolidate this workload at the Letterkenny Army Depot (LEAD), PA. We believe the decision to consolidate was a good one. It provides the potential for greater efficiency and reduces costs and down time for vital defense assets. For the 1995 BRAC round, the Office of the Secretary of Defense endorsed an Army recommendation to deviate from the '93 BRAC decision and realign the LEAD consolidation in a three part move. The OSD recommendation retains All-Up-Round (AUR) testing, maintenance and storage at LEAD, and moves the maintenance of the GCSs to Tobyhanna Army Depot (TOAD), PA and the launchers and vehicles to Anniston Army Depot (ANAD), AL. The Army recommendation reverses the intent of the 1993 BRAC decision by fragmenting rather than consolidating the tactical missile workload.

Hill Air Force Base, Utah, and the Air Force provide a viable alternative to allow complete consolidation of the tactical missile maintenance workload at one location. Hill AFB currently provides depot maintenance for the Air Force, Navy, and Marine Corps Sidewinder and Maverick missile GCSs as well as AUR maintenance for the Maverick. In addition, Hill AFB is the management focal point for the Maverick missile system. Hill AFB provides the capability to go beyond the BRAC '93 decision and accept the consolidated workload, to include GCS overhaul and repair and All-Up-Round maintenance as well as launcher/vehicle maintenance.

The Hill AFB facilities (modification, repair, test and storage), personnel skills base, infrastructure, and transportation are available to ensure consolidation at a low cost, within the time frame specified by the '93 BRAC. This consolidation would provide synergism with precision guided munitions, cruise missiles, and ICBM missile workload currently being accomplished at Hill AFB, through sharing of similar technology bases. An overview of the major areas to be considered in workload consolidation at Hill AFB are provided in the subsequent paragraphs.

No MILCON needed
Facilities. The additional tactical missile GCS maintenance will be centrally located in the present missile and aircraft electronic maintenance area. The interconnecting bays allow for rapid movement of components throughout the repair process. While some equipment relocation and facility repair funds are required, there are no MILCON requirements to complete the consolidation of DoD tactical missile requirements.

Hill AFB provides a state of the art, 24,572 ft², facility for AUR testing and maintenance. With a small modification, this facility will provide sufficient space to handle the

Hill AFB Command, Proposal - "White Paper"

projected AUR workloads. In addition, several large missile integration maintenance facilities are available for overflow workload.

*For local
curriculum
known?*

Hill AFB can make 400,000 ft³ of explosive storage space and classified warehouse space available. This space, in 45 structures in the munitions storage area, located on 1,800 acres, is available at Hill AFB to handle consolidation of the tactical missile workload. This will provide access to assets entering the depot maintenance process and to meet immediate mission requirements. In addition, space is available at adjacent military facilities to meet other explosive storage requirements.

Vehicle and launcher repair will be integrated into the Hill AFB intercontinental ballistic missile erector and transport overhaul and repair facility. This 141,560 ft² high bay, facility includes a complete, collocated support infrastructure, i.e., paint shop, sand blast, and machine shop. The vehicle repair facility provides processes for rapid repair of some of the largest surface vehicles and erectors in the free world.

Skills. Hill AFB tactical missile GCS personnel retain a high electronics skills base coupled with specific training and expertise in the four major GCS skill areas, Electro-Optical, Infra-Red, Laser, and Radar. Hill AFB is also the major source of repair for the Air Force ICBM workload, combined with the tactical missile workload currently at Hill AFB, our personnel accomplish approximately 70 percent of the overall hours of DoD missile workload. With over 100 tactical missile skilled GCS technicians and 300 strategic missile technicians, training requirements are greatly reduced. These skills ensure a rapid ramp up time over depot personnel with basic electronics experience and little or no GCS specific skills.

Hill AFB Maverick missile personnel have extensive experience in the maintenance and testing of AUR missiles. This provides a core of missile technicians with an intimate understanding of the requirements for system integration between explosive and non-explosive components in tactical missile AUR processes.

The Hill AFB personnel have specialized transportation and handling equipment skills such as ICBM transport erector skilled personnel. These personnel, coupled with the Army trained vehicle mechanics, recently laid off from Toole Army Depot, available in the local skills base provide a strong personnel core to complete the vehicle and launcher maintenance portion of the consolidated workload.

Infrastructure. As a major Air Force maintenance depot, Hill AFB provides the full scope infrastructure to manufacture or repair most any item not immediately available through the supply system or from one of the hundreds of manufacturers in the local area. Backshop maintenance capability at Hill AFB, applicable to tactical missile workload includes, but is not limited to, a Computer Numerically Controlled Machine Shop, Plating Shop, Computed Tomography Scan, High Energy X-Ray, and a Composite Shop. These

facilities are designed to handle items up to the size of ICBM motors and C-5 landing gear. In addition, extensive experience with solid rocket motors and the associated skills and facilities provide the capability to test and maintain all types and sizes of motors required to support the tactical missile consolidation. The Utah Test and Training Range provides a land area of over 900,000 acres to test AUR missiles and missile components. Also, two major rocket motor manufacturers (Hercules, Thiokol) are located within the community, providing an additional source of technical expertise.

Transportation. Hill AFB provides the benefit of an active military runway, routinely accommodating C-5 aircraft, immediately adjacent to the munitions storage and staging area. According to the most recent plan, Hill AFB has 8 sited "Hot Pads" with the capability to handle 754K 1.1 N.E.W. This capability, not available at the present OSD proposal sites, provides immediate, twenty-four hour support for world wide distribution of munitions. Our airlift capability coupled with an explosive sited railroad spur and immediately adjacent North-South, East-West Interstate system, provides Hill AFB with rapid transportation to any desired destination.

Transition Schedule. We recognize the need to ensure the completion of the workload consolidation within the time schedule established by the '93 BRAC decision. The transition plan prepared by Hill AFB personnel demonstrates the consolidation will easily be completed by the end of FY98, well within the desired schedule. The present workload, including Sidewinder and Maverick (171,800 Direct Labor Hours), provides the base for the Hill AFB tactical missile transition schedule. Transition of the workload to other Army depots will require secondary transfer of the workload at LEAD and the initial transfer of the workload from Hill AFB and other depots, thus increasing the overall transfer costs and the associated risk. Due to the commonality of tactical missile systems, consolidation at Hill AFB can be completed with minimal risk. The Sidewinder equipment presently in place will be used to immediately begin repair of the Navy sidewinder workload, as demonstrated during Desert Storm. The commonality between the Maverick equipment makes the transfer and integration of the Hellfire missile system a very low risk situation.

Cost. Analysis of the current cost requirements for tactical missile consolidation at LEAD and projections made by Hill AFB personnel show that the consolidation could be completed at Hill AFB for much less than projected at LEAD and likely within the remaining LEAD consolidation budget. This is attained by reaping the benefits of an almost \$12 million cost avoidance by not moving the tactical missile system currently located at Hill AFB. Additional savings are gained by taking advantage of more highly skilled personnel currently located at Hill AFB, reducing training requirements and associated cost. In February 1994, LEAD proposed a budget of \$51 million. This was amended in February 1995 to \$44 million. We project the cost to consolidate the tactical missile workload at Hill AFB to approximately \$25-27 million. As of the first quarter of 1995 LEAD reported they had expended \$16.1 million. Compared to the original budget,

Hill AFB offers a cost savings of \$24-26 million and compared to the current projection, Hill AFB offers a cost savings of \$18-20 million. If LEAD's reported expenditures are correct, Hill AFB can accomplish the tactical missile consolidation within the remaining budget.

Workload. The workload has greatly decreased through approval of waivers and changes in the force structure requirements since the '93 BRAC recommendation. This climate makes the consolidation much easier than originally planned and much more critical if the ultimate benefits of consolidation are to be achieved. A table showing the expected workloads transferring under tactical missile consolidation and the associated hours for each systems is provided, Attachment 1. This workload is well within the capacity of existing facilities at Hill AFB.

Consolidation of the tactical missile workload remains the most desired option, providing optimum facility utilization, a centralized strong skills base to rapidly respond to changing requirements, and great potential for the lowest life cycle cost. Consolidation at Hill AFB will provide the Department of Defense (DoD) with a single source of repair (SOR) with proven capability to accomplish the tactical missile maintenance mission and improves on the purpose of the original workload consolidation decision. The Army's recommended plan to disperse the tactical missile workload among three depots leaves Hill AFB as the viable alternative for complete consolidation.

Army Recommendation. The following paragraphs examine the BRAC '95 recommendations made by the Army for the tactical missile workload and the cost savings that can be realized by consolidating the workload at Hill AFB.

The Army has proposed moving the GCS repair portion of the tactical missile workload to Tobyhanna Army Depot (TOAD), separating it from AUR testing and launcher maintenance. There are several disadvantages to this recommendation. First, as noted above, this fragments the tactical missile workload. Second, the entire GCS workload would have to be moved to TOAD which currently has little or no GCS workloads or experience. This requires virtually all personnel to be trained in specialized tactical missile GCS skills, resulting in higher costs

The Army has recommended that the remaining portion of the tactical missile maintenance mission, AUR testing and repair, remain at Letterkenny Army Depot. While a common practice of the past, once again it results in the fragmentation of the tactical missile workload. If consolidation remains the goal, and LEAD is an unacceptable site to accomplish this consolidation, then Hill AFB remains the viable alternative.

The Army recommendation moves the repair of tactical missile launchers and vehicles to Anniston Army Depot. Again this fragments the tactical missile workload.

*which is
Hill AFB
at Fort
Campbell*

Summary. A decision to consolidate the tactical missile workload at Hill AFB allows the consolidation to be completed in less time and with less cost than the option recommended by the Army. The expected costs of moving the workload to Hill AFB are lower than those projected by LEAD. This lower cost is primarily due to the experience base in tactical missile related skills and the reduction in systems requiring movement to a new location. We believe that the cost savings would be of similar magnitude when compared to the plan presented by the Army in the BRAC '95 recommendations. In order to fulfill the Army's recommendation, 100 percent of the GCS workload would have to be moved to TOAD. The only savings would be from leaving AUR maintenance in place at LEAD. Choosing to consolidate the tactical missile workload to Hill AFB would result in a one time savings (of approximately \$12 million) from not moving two major GCS workloads, having a base of specific tactical missile trained personnel, existing vehicle maintenance facilities and skilled personnel, immediate airlift capability, and sufficient adjacent storage to support all aspects of the tactical missile operation.

*Collegiate
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S. down*

With the Army's decision to end maintenance operations at LEAD, the only location capable of handling the entire tactical missile consolidation, at reasonable cost, is Hill AFB. A proposal, Attachment 2, was made in February 1995, by Hill AFB personnel to consolidate, not only the workload scheduled for LEAD, but also all other known DoD tactical missile workloads, at Hill AFB. The proposal provides the only viable solution to facilitate the DMRD 908 recommendation and BRAC '93 decision for consolidation of tactical missile workloads. We recognize consolidation is the best decision for long term tactical missile sustainment in DoD.

OGDEN AIR LOGISTICS CENTER (ALC)

**TACTICAL MISSILE
CONSOLIDATION PROPOSAL**

2 February 1995

**Ogden ALC/FMPB
Hill Air Force Base, Utah 84056-5824**

**Prepared By:
Philip A. Paskett**

7

OGDEN AIR LOGISTICS CENTER
TACTICAL MISSILE CONSOLIDATION PROPOSAL

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EXECUTIVE SUMMARY

INTRODUCTION. Hill Air Force Base is a government owned, government operated installation established in 1939 and is located in northern Utah, approximately 30 miles north of Salt Lake City. The Air Force Materiel Command (AFMC) operates Ogden Air Logistics Center (ALC) which is located at Hill AFB. Currently, Ogden ALC is assigned worldwide logistics management, maintenance, and testing support responsibilities for our nation's fleet of silo-based inter-continental ballistic missiles, landing gear, conventional munitions, reconnaissance sensor technology, and the F-16 Fighting Falcon. Our single point of logistics management includes the full scope of acquisition, engineering, item management, technical management, logistics support, aging and surveillance testing, and depot maintenance collocated at one installation. Our mission support is enhanced with the collocation of our nationally recognized environmental support staff.

Hill AFB is situated on 6,698 acres of land. Our test and training range has over of 900,000 acres and is within 30 flight miles of the base. Our infrastructure includes 1,438 buildings (including those at remote activities), 239 miles of roadway systems, 31 miles of railroad, and 6.4 million square feet of airfield pavement. There are 5.1 million square feet of industrial space available for maintenance activity, over 247,000 square feet of collocated munitions storage, with additional munitions storage available at the nearby Tooele Army Depot.

Hill AFB hosts more than 50 tenant organizations, including the Regional Information Processing Center (one of two state side information hubs), a Defense Logistics Agency (DLA) storage depot and distribution point, and the 388th and 419th Tactical Fighter Wings. They benefit by our geographical location, close proximity to a major commercial airport, support infrastructure, and adjacent training facilities.

Firmly established as one of the state's largest employers, Hill AFB has a significant and positive impact on Utah's economy. There are several universities, colleges, and vocational schools in the immediate area of Hill AFB with established cooperative education programs in electronics and mechanical training to support our present and future missions.

Our workforce is trained in electronic, electro-mechanical, infrared, radar, optical, vehicle maintenance, ground support equipment, and missile transporter and erector skills. The local workforce provides a variety of baseline skills required to support the increased workload, including Army trained vehicle mechanics, reducing internal training cost and lead time. A number of industrial facilities also utilize personnel having these skills.

Collocation of functions required to support the repair, modification, test, and storage of conventional munitions and tactical missiles provides a demonstrated benefit to system engineering, test, and repair. Our Silo-Based Intercontinental Ballistic Missile (SBICBM) infrastructure with computed tomography and X-ray capability and the extensive Utah Test and Training Range provide specialized test capability that is not available at other depots, including live drops and flight profiles with completed analysis in the same work day. Through dual usage of expertise and capabilities (manpower, equipment, facilities, and response-time), the optimum use of available resources is achieved.

Hill AFB provides immediate access to ground, rail, and air transportation. Three major Interstate Routes, I-15 (north and south), I-80 and I-84 (east and west) are adjacent to, or in close proximity to, the base. Hill AFB provides a major ground cargo terminal and an explosive-sited rail head located within the confines of the base. The base's railroad tracks provide access to a major rail freight terminal located five miles to the north in Ogden, Utah, providing direct shipment to or from any railway across the country.

Commercial air transportation is located 30 miles south at the Salt Lake City International Airport, providing timely access for personnel visiting our depot. Military air transportation is provided on base using our 13,500-foot runway and associated air cargo terminal. Hill AFB's capacity to project, generate, and sustain support for contingencies and mobilization meets or exceeds all military organizational requirements. We have 17 hot pads capable of handling up to 694,000 pounds of 1.1 net explosive weight.

SCOPE. The purpose of this document is to provide more detailed supporting data on the transfer of the complete tactical missile workload from their assigned depots to Hill AFB, Utah. The workload to be transferred is that which is presently scheduled to be in place at the depots in FY99. The workload hours are those projected as core hours for the same fiscal year. Therefore, the guidance and control unit workload presently at HILL AFB is considered as part of the Letterkenny 623,000 direct labor hours (DLH) identified below. A list of the depots and their respective hours are as follows:

Letterkenny Army Depot (LEAD)	623,000 DLH
Red River Army Depot (RRAD)	58,000 DLH
Tobyhanna Army Depot (TOAD)	59,000 DLH
Crane Naval Surface Warfare Center (CR-NSWC)	38,000 DLH
Wamer-Robbins ALC (WR-ALC)	13,000 DLH

TRANSITION. Our Transition Plan includes all the workloads identified in the LEAD Tactical Missile Consolidation Plan in addition to the RRAD, TOAD, CR-NSWC, and WR-ALC workloads not identified. This proposal was developed with the intent of providing estimates for accomplishing facility and equipment relocation at Hill AFB, with the workload transfer from the current Source of Repair (SOR) to Ogden ALC at the earliest reasonable time following a decision. Our plan was developed to provide the most timely transfer possible, while maintaining maximum missile system readiness. Our proposed milestone transition schedule is provided. In the event a decision is made to retire systems or leave them in contract maintenance, the milestone schedule can be adjusted accordingly.

FACILITIES. Military Construction (MILCON) is not required to facilitate the tactical missile workload at Hill AFB. The workload will be placed in existing facilities centralizing the guidance control unit (GCU) and electronics workloads in Buildings 5 and 100. The vehicle workload will be integrated with our missile erector and transporter overhaul repair area in Building 847, with in excess of 100,000 square feet made available in Building 238 and other high bay general purpose

facilities located on base. Minor construction to modify existing facilities and upgrade to the next level of certification is required.

EQUIPMENT. Equipment presently used in the depot maintenance of the proposed systems or obtained/provided to support the LEAD activation will be transferred to Hill AFB to facilitate the activation process. Workloads and associated equipment scheduled to transfer, that are presently at a contract facility, will be brought on line at Hill AFB with the associated cost paid for by the appropriate System Program Office.

PERSONNEL. The personnel requirements were calculated from the projected core hours using the DoD capacity standard of 1,615 hours/man-year for direct labor. The personnel requirements for indirect labor and base operating support were calculated based on the total direct labor at 17 and eight percent respectively.

TRAINING. Our training costs were developed using two scenarios, a) transfer of 60 percent of the personnel, b) transfer of 20 percent of the personnel. While the 60 percent personnel transfer resulted in a smaller training cost, it also resulted in a much higher transfer cost and an overall higher relocation cost. The details of our plan are provided in the subsequent sections.

OTHER ISSUES. Complete workload transition plans must include the full impact of the plan on the financial and mission/support requirements of each weapon system. Our proposed plan is a basic plan that demonstrates part of the transition process (i.e., transition timeline, facilities impact and cost, personnel required, and training). Detailed data is required before the complete plan can be finalized. While we have completed some preliminary work on some of the other issues (i.e., first article cost, severance pay, transfer cost, and transportation) the details can not be accurately prepared without visual inspection of the work and interface with the other depots.

TRANSFER PLAN

Ogden ALC has the capability to accept the entire Department of Defense tactical missile maintenance workload without major military construction and minimum facility modification costs. Our transfer plan has been established to move these workloads to Ogden ALC and still meet the original operational dates proposed by LEAD. This plan is still tentative, as much of the details of the whole workload are not clearly defined (e.g., Red River and Tobyhanna). However, AIM-9, AIM-9 Modification, the AGM-65, and the most modern air launched strategic missile workloads are already being performed at Ogden ALC, providing a foundation for any missile workload consolidation.

In order to meet the proposed transfer schedule at the expected cost, the current AIM-9 and AGM-65 workload transfer to LEAD must be delayed approximately 120 days, until a new law directing the relocation of the tactical missile workload to Ogden ALC is passed. In addition, other workloads would need to begin transferring to Ogden ALC immediately to meet the target dates for initial repair capability. Ogden ALC is ready to accept "like" workloads first (i.e., Navy AIM-9 and Hellfire). These are similar to our existing workloads providing the ability to rapidly ramp-up and sustain mission requirements. Once these workloads are operational, Ogden ALC will phase-in those workloads currently in a transfer status and finally move to consolidate workloads currently operational at other sources of repair.

Ogden ALC has approximately 25 percent of the workload proposed for consolidation already in place. This allows Ogden ALC to perform the workload transfer and achieve initial operational capability in much less total time than LEAD. Ogden ALC has established a realistic transfer plan and fully expects to execute the plan when a decision is made. A copy of our plan is provided on the following page.

Tactical Missile Consolidation Transfer Plan

Schedule Indicates Initial Start Dates

Weapon System Name	Start Date	End Date	FY 1995				FY 1996				FY 1997				FY 1998				FY 1999				
			1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	
Crane Workload	Jan 96	Jun 96						[—]															
Avenger	May 96	Sep 96							[—]														
MLRS	May 96	Mar 97							[—]														
ATAS (Bottles)	Feb 96	Jun 96						[—]															
ATAS / Avenger	May 96	Mar 97							[—]														
ATACMS	Apr 96	Sep 96							[—]														
Sparrow	Jan 96	Sep 96						[—]															
Hellfire	Feb 96	Jun 96						[—]															
HARM	Jan 96	Sep 96						[—]															
Dragon	Jan 96	Sep 96						[—]															
Phoenix	Nov 95	Jun 96					[—]																
MLRS (CTR)	July 96	Mar 97							[—]														
Hawk (Marine)	Jan 96	Jun 96						[—]															
TOW BFVS	Sep 96	Jun 97								[—]													
AF Sidewinder	In	Place																					
Maverick	In	Place																					
Navy Sidewinder	Oct 95	Dec 95					[—]																
TOW Cobra	Apr 96	Sep 96							[—]														
TOW II	Jan 96	Dec 96						[—]															
Patriot (CTR)	Jul 96	Mar 97							[—]														
Standard	May 96	Sep 96							[—]														Note 2
Shillelagh	Apr 96	Dec 96							[—]														
LCSS	Mar 97	Dec 97									[—]												
Chaparral	Jul 96	Mar 97								[—]													Note 1
AN/TSQ-73	Nov 95	Mar 96					[—]																Note 1
AMRAAM	Oct 97	Mar 98												[—]									
Stinger	No	Sched.																					
Harpoon (CTR)	No	Sched.																					
Sidearm (CTR)	No	Sched.																					
Tobyhanna LRU	Jan 96	Sep 96						[—]															
Red River Wkld	Apr 96	Feb 97							[—]														
WR-ALC (Black)	Oct 95	Mar 96					[—]																

Note 1: Chairman TMC-JSWG approved decision to retire in place. No consolidation.

Note 2: Decision pending NOT to consolidate contractor workload.

FACILITIES PLAN

An overview of the facilities used in the tactical missile consolidation plan is provided in the subsequent paragraphs followed by a facility layout. Additional layouts are provided for specific bays within a building where more detail is required.

BUILDING 100. Building 100 is constructed of brick with metal personnel doors and metal overhead doors to facilitate the shipping and receiving area. The current facility has security systems with all doors tied to an alarm system. The interior is climate controlled to accommodate sensitive electronic test equipment. Utilities include heat, power, air conditioning, and lightning control sensors. The building is supplied with air pressure, nitrogen lines to work stations, and 60/400hz power. The facility is equipped with a 10,000 gallon liquid nitrogen tank, one waterfall and two standard paint booths, vibration testing capability, and a 1,000 class clean room. Capabilities are available to support optical refurbishment and small machine shop operations. The facility accommodates physical and chemical science laboratories as well as a tool crib, a consumable materials distribution point, and assorted administrative support. The following paragraphs provide a brief description of the Building 100 bays that will be used in the tactical missile workload consolidation.

Bay A: The photonics operation within this bay is equipped with assorted optical testing and refurbishing capabilities. The optical polishing and testing equipment is modern and suitable to support Infrared and Visible light capable systems. There is a minor modification cost of \$20,000.

Bay K: The Air Force Sidewinder AIM-9 missile workload is currently established within this bay. This facility will support the Navy Sidewinder, Avenger, Chaparral, and Standard missiles electronic components. There are no facility modification costs.

Bay L: Currently the ICBM weapon system is occupying some of the space on the air conditioned raised floor. There will be enough floor space to accommodate Tobyhanna LRU workload requirements. There are no facility modification costs.

Bay N: This bay will to be used to support Hawk, AMRAAM, and ATAS weapon systems. There are no facility modification costs.

BUILDING 5. Building 5 is constructed of brick with metal personnel doors and metal overhead doors to facilitate the shipping and receiving area. The interior is climate controlled to accommodate sensitive electronic test equipment. Utilities include heat, power, air conditioning, and lightning control sensors. The building is supplied with air pressure, nitrogen lines to work stations, and 60/400hz power. The facility is equipped with a 10,000 gallon liquid nitrogen tank, three 400 square foot waterfall paint booths, and a 1,000 class laser clean room. The facility includes four radio frequency (RF) shielded rooms and appropriate administrative space. The following paragraphs provide a brief description of the Building 5 bays that will be used in the tactical missile workload consolidation.

Bay B: This bay requires some modification to include placing a large door between bays B / C and relocation of a hoist. The bay will be designated as the shipping and receiving facility for all tactical missile components located in Building 5. Estimated modification cost is \$60,000.

Bay C: Presently supports tactical missile and aircraft radar workloads. The bay will be modified to facilitate the repair of Hawk and Patriot missile components. Estimated modification cost is \$170,000.

Bay D: The Maverick missile is currently serviced within this bay. The Hellfire is similar to the Maverick missile and collocation is beneficial to both programs. Other systems to be placed within this bay include Patriot and launcher electronic components. Some modification is required, including placing a door between bays D and E. Estimated modification cost is \$88,000.

Bay E: The facility will support the TOW and Dragon missile components with the addition of a door between Bays E and F. Estimated modification cost is \$8,000.

Bay F: The facility will support Phoenix and HARM missile components. This bay requires a minor construction project to lower ceilings, improve ventilation, and replace floor tile. Estimated modification cost is \$290,000.

Bay G: This area will house the administrative portion of the tactical missile workload in a consolidated facility. All required equipment and office materials are in place. There are no facility modification costs.

Bay M: Home of the F-16 Avionics Test Facility with six anechoic chambers for testing radar antennas and radomes. Two of the chambers are available for testing the HARM, PHOENIX, and AMRAAM missile systems. There are no facility modification costs required.

Bay P (mezzanine): The facility will support Shillelagh, MLRS, Sparrow, ATACM, Tobyhanna LRUs, and AN/TSQ-73. An elevator is in place to move large equipment. Some modification to include walls and ceiling tile is required. Estimated modification cost is \$290,000.

BUILDINGS 2026 AND 1424. These facilities are constructed of concrete. The bays within the buildings are segregated with concrete walls to facilitate testing of explosive material. The personnel doors are metal with steel overhead doors to accommodate shipping and receiving. Each facility has a security alarm system. Access to the buildings are gained by passing through a guarded gate.

BUILDING 847. Our modern 146,000 square foot vehicle repair facility houses the repair and overhaul processes for the Minuteman and Peacekeeper transporters and erectors. The facilities provide sandblast and paint booths designed to process large vehicles and equipment up to 14 feet high, 13 feet wide, and 100 feet long. Special features include four 380-foot drive through bays each with a 10,000 pound capacity 100 foot bridge crane, fourteen 100 foot bays, a ventilation system for indoor engine operation, and hazardous material zoning meeting Federal, State, and EPA standards. In addition, our facility provides fully equipped sheet metal, welding, machine and component repair shops, along with proof loading capability to 120,000 pounds.

BUILDING 509. The facility is constructed of concrete and consists of high and low bay work areas. Part of the facility can be secured to accommodate mission requirements. It is explosive-licensed for repair of egress systems and cartridge activated device/propellant actuated device (CAD/PAD) systems. Excess capacity in the facility will be used to repair the Crane workload. There is no modification cost.

OTHER INFRASTRUCTURE. As a major Air Force maintenance depot, Ogden ALC provides the full scope infrastructure to manufacture or repair most any item not immediately available through the supply system or from one of the hundreds of manufacturers in the local area. To meet the full range of requirements necessary to support tactical missile overhaul operations, support functions are vital. The following table lists some of the support functions/shops embedded in the Ogden ALC infrastructure.

Shop Name	Shop Name	Shop Name
Computed Tomography Inspection	X-Ray Inspection	Propellant Laboratory
Dissection Shop	Propellant Machine Shop	Chemical Laboratory
Physical/Dimensional Laboratory	Propellant Chemical Analysis Lab	Investment Casting
Software Development	Machine Shop	Cable and Harness Manufacturing
Optical Polishing and Coating Refurbishment and Mfg.	Rubber Manufacturing	Sheet Metal Manufacturing
Circuit Card Manufacturing	Wood Mill	Textile Shop

In Addition, Ogden ALC hosts the Munitions Maintenance and Test Squadron, responsible for storage, inspection, maintenance, handling, testing, and shipment of over 3,800 munitions line items. They maintain 140 storage structures capable of storing over seven million pounds of net explosive weight. They provide aging surveillance and sustainment testing capability for munitions and associated components including, fuses, rocket motors, batteries, and starter cartridges, to name a few.

Extensive experience with solid rocket motors and the associated skills and facilities provide the capability to test and maintain all types and sizes of motors required to support the tactical missile consolidation. The Utah Test and Training Range provides a land area of over 900,000 acres to test AUR missiles and missile components. Our infrastructure is enhanced with two major rocket

Missile Seeker Technologies Repaired at Hill AFB

Missile Name	Basic Electronics	Infrared	Electro Optics	Radar	Inertial Navigation	Data Link	Ultra Violet	Laser	Other
AMRAAM	X			X ²					
ATAS Bottles									X ⁴
ATACMS	X			X ²	X				
ATAS / Avenger	X	X					X		
Avenger	X	X					X		
Dragon	X	X	X ³						X
HARM	X			X ²					
HAWK	X			X ¹		X			
Hellfire	X	X					X		
LCSS	X								
Maverick / SLAM	X	X	X		X	X		X	
MLRS	X								
Patriot	X			X ¹					
Phoenix	X			X ²					
Shillelagh	X								
Sidearm	X			X ²					
Sidewinder	X	X							
Stinger	X	X							
Sparrow	X			X ²					
Standard	X			X ¹	X	X			
TOW BVFS	X		X ³						
TOW Cobra	X		X ³						
TOW II	X		X ³						

Each of the technologies above are already used in existing workloads at Ogden ALC.

NOTES:

ATCH 5

- 1- Antenna based, controlled by ground radar
- 2- Embedded Radar
- 3- Wire Guided
- 4- Pneumatic

MISSILE SEEKER TECHNOLOGY SKILLS BASE

Basic Electronics. Our GCS technicians are trained and certified in AC/DC theory, semiconductor theory, circuit analysis, digital electronics, computer programming, analog electronics, high reliability soldering, microminiature soldering, and multilayer soldering. These electronic skills provide a strong baseline for learning the specialized skills required to repair GCS units.

Infrared Technology. Currently, we repair and overhaul missile guidance control seekers, i.e. Maverick Missile (imaging infrared), Sidewinder Missile (heat source infrared), and the GBU-15 Infrared Guided Bomb (imaging infrared), using this technology. Hill AFB has appropriate skilled workforce to meet any missile infrared based guidance control system requirements.

Electro-Optics Technology. Ogden ALC accomplishes repair and overhaul of the Electro Optics Maverick Missile guidance control section. We also overhaul GBU-15 Electro Optics Guided Bombs and assorted electro optics camera systems. This Center has the required skills and facilities to repair and overhaul any eletro optic guidance control systems.

Radar Technology. Hill AFB personnel repair the F-4G and F-16 A/B/C/D fire control radar systems. Included within the capability are the appropriate antenna and radar ranges necessary to provide full functional testing. Skills and facilities are available at Hill AFB to support radar based technology within missile guidance control systems.

Inertial Navigation Technology. Ogden ALC provides repair and modification capabilities in inertial navigation technology by supporting a variety of Air Force weapon systems including; cruise missiles and F-4, F-16, and C-141 aircraft navigational systems. This Center is the Center of Excellence within the Command on navigational components. Skills and facilities are in place to support missile components using this technology.

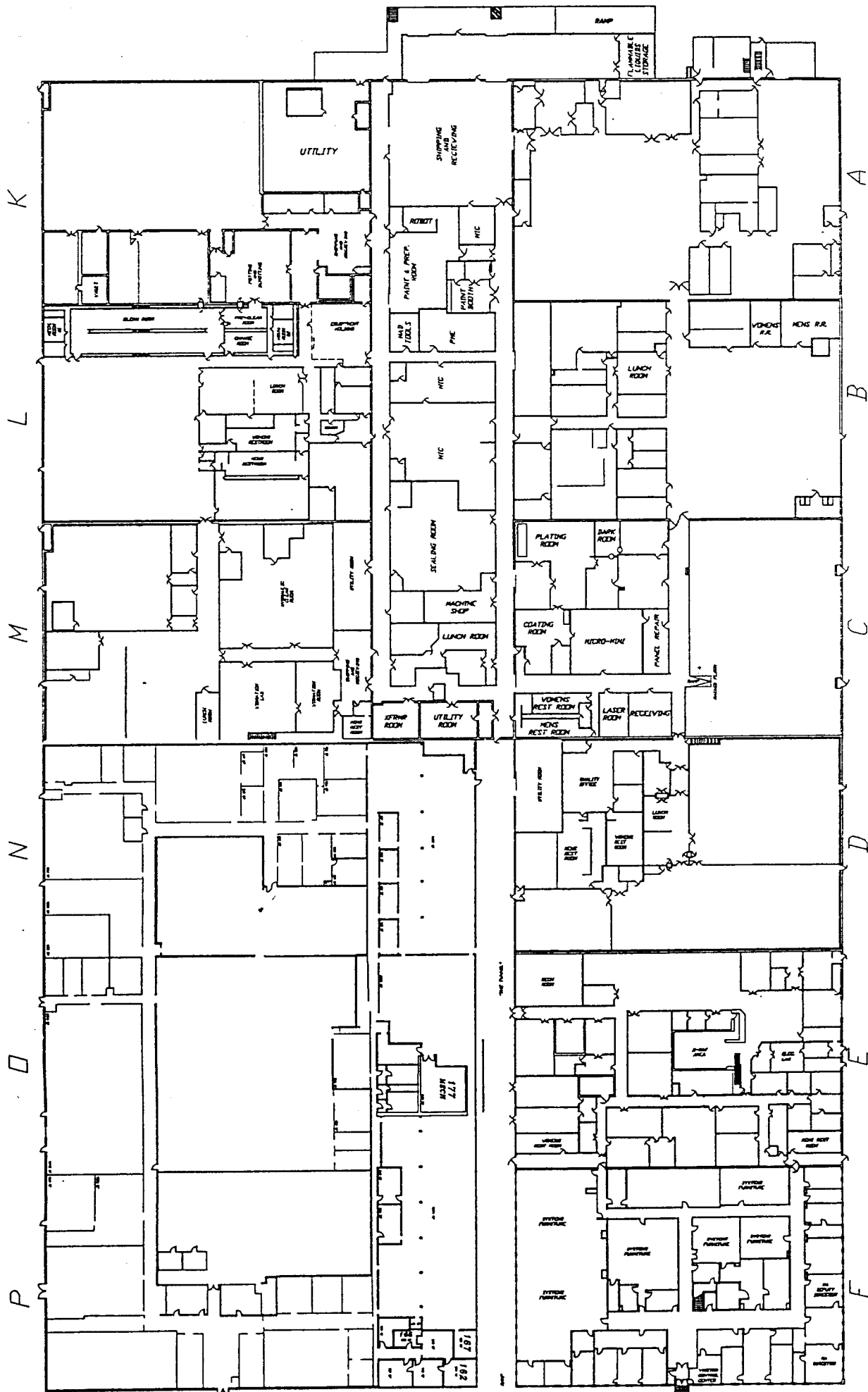
Data Link Technology. Data link technology is currently in place in our support of GBU-15 Guided Bomb Family of weapon systems. Appropriate skills and facilities are in place to support missiles that use this technology.

Ultra Violet Technology. This technology is similar to infrared but at a different energy band width. We accomplish depot level maintenance on Coast Guard electro optic sensors that use this technology. Skills and facilities, with unique equipment capabilities already exist at this Center.

Laser Technology. We repair the Laser Maverick Missile, the PAVEWAY laser guided bomb, and laser alignment equipment associated with missile launching operations. We have already established appropriate laser certified facilities and a skilled workforce to accommodate this technology.

March 20, 1995

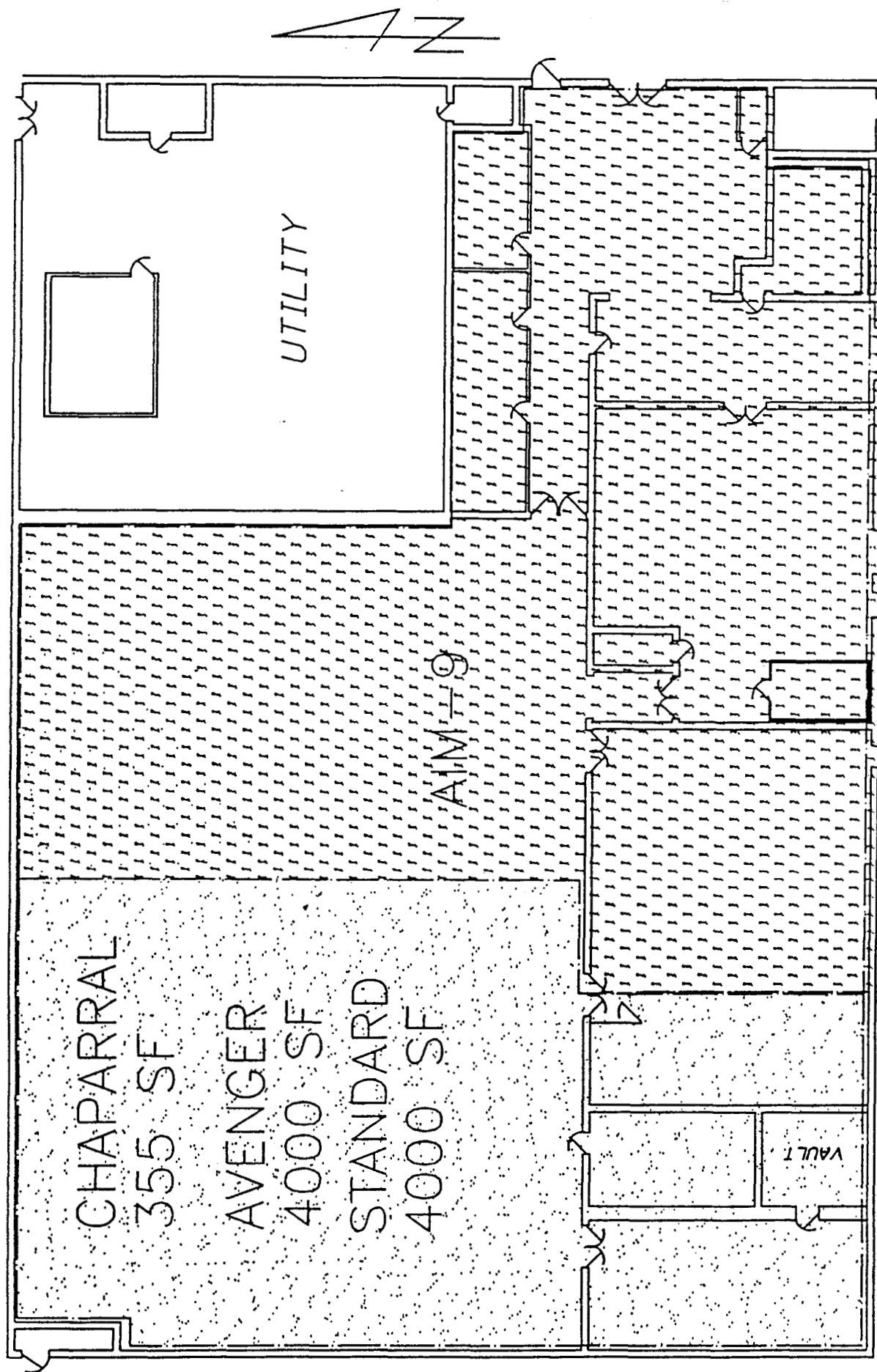
motor manufacturers (Hercules, Thiokol) who are located in the local vicinity and provide an additional source of of explosive expertise.



BLDG. 100

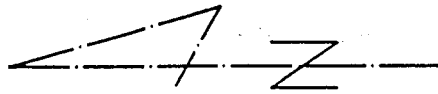
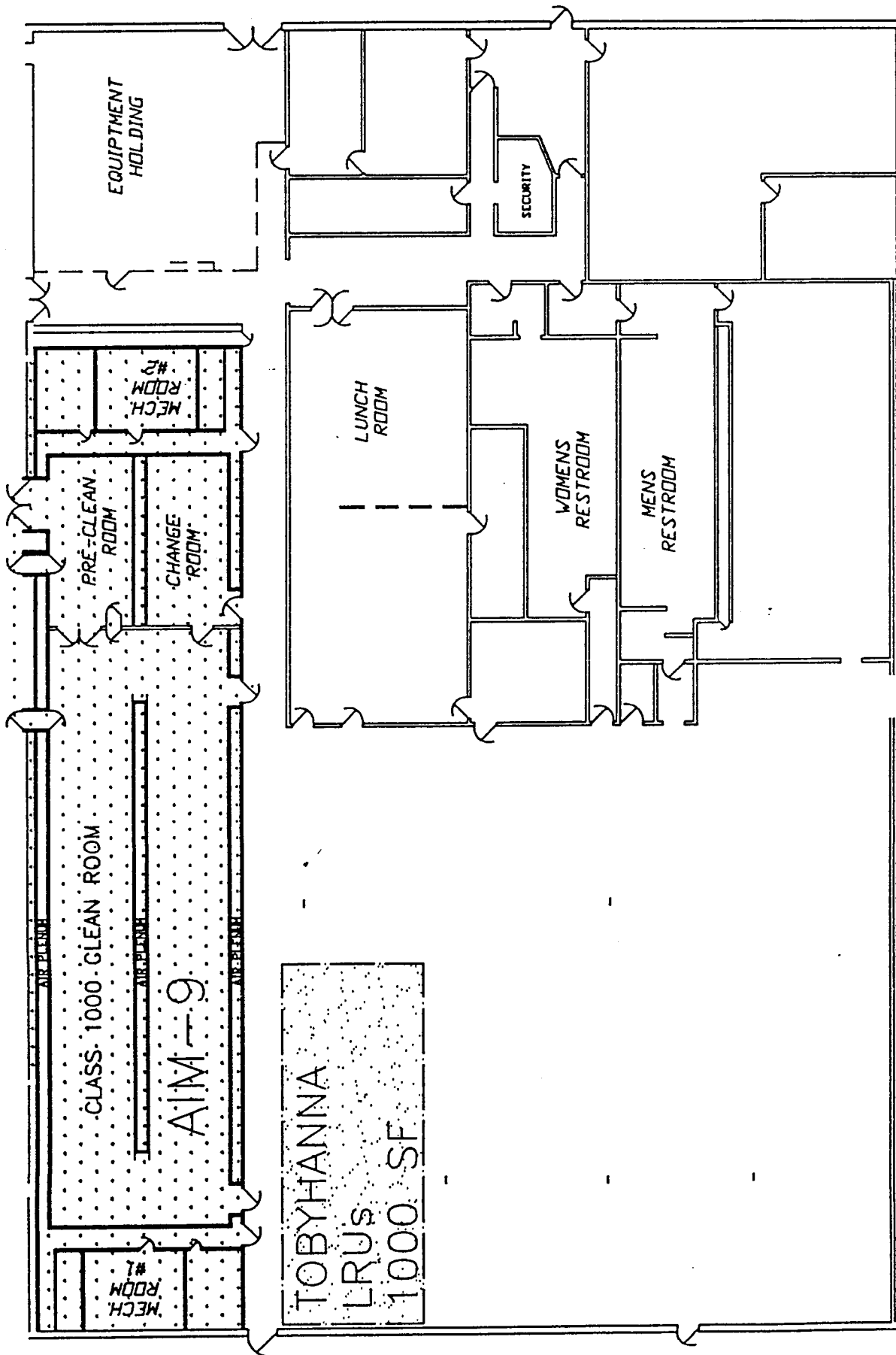
SCALE: 1" = 75'





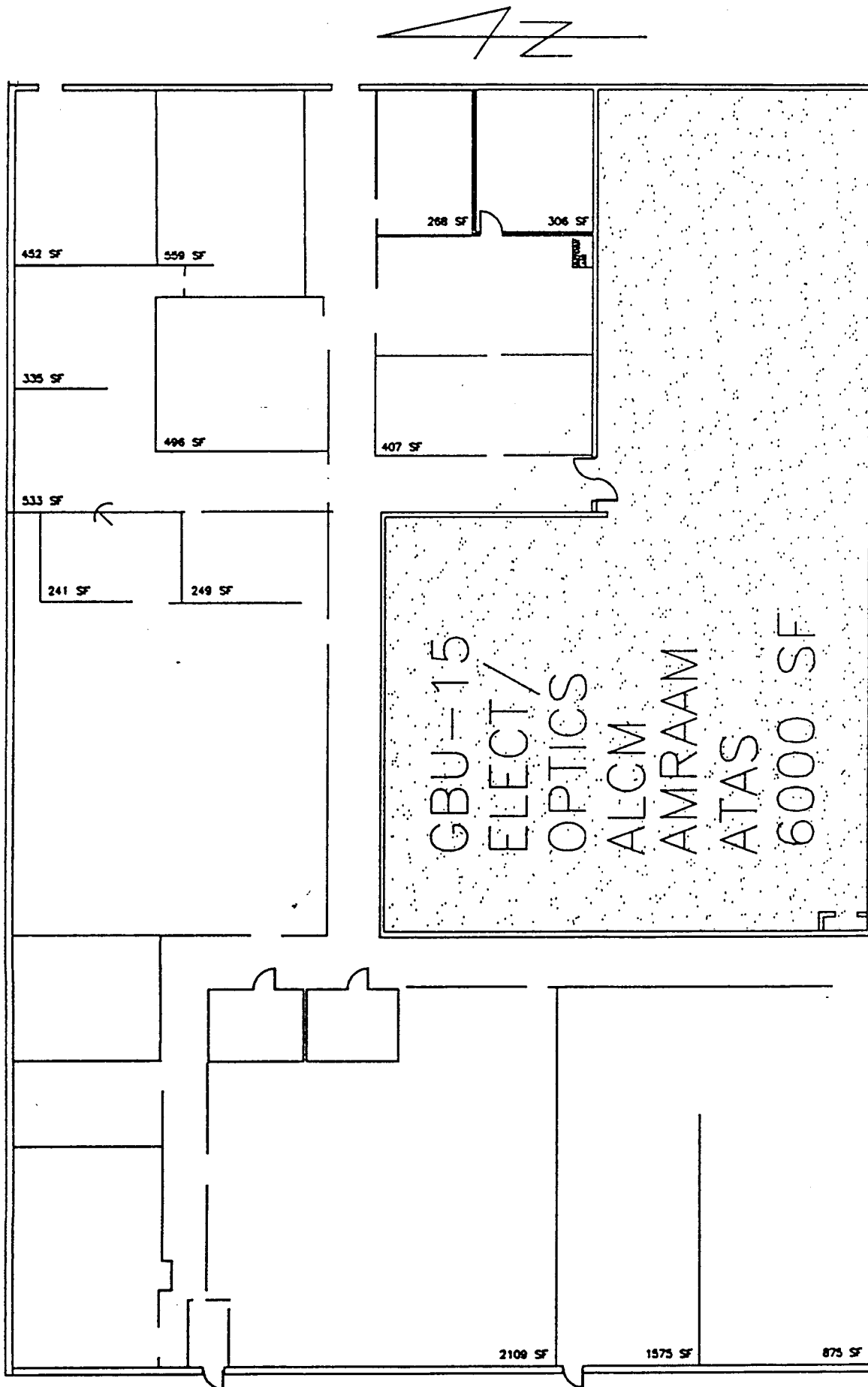
BLDG 100 BAY K

SCALE: 1" = 20'




BLDG 100 BAY L

SCALE; 1" = 20'



BLDG 100 BAY N

SCALE; 1" = 20'

		MILPS 2,500 SQ. FT.
SPANION 15,000 SQ. FT.		SHIELDLOCH 1887 SQ. FT.
		SHIELDLOCH 1,000 SQ. FT.
		SHIELDLOCH 1,000 SQ. FT.

BLDG 5 BAY P
MEZZANINE 100,000 CLASS CONTROL AREA

A

B

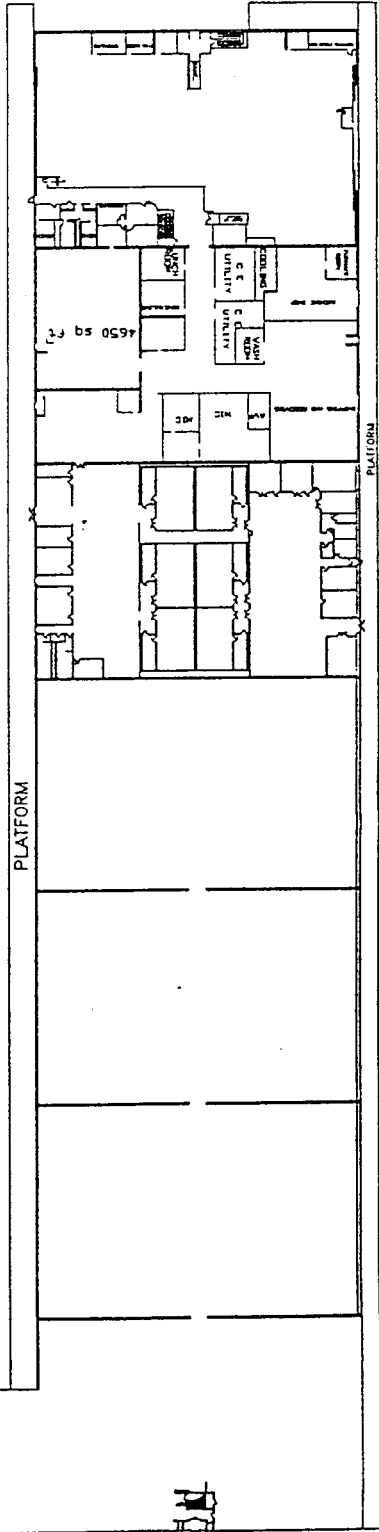
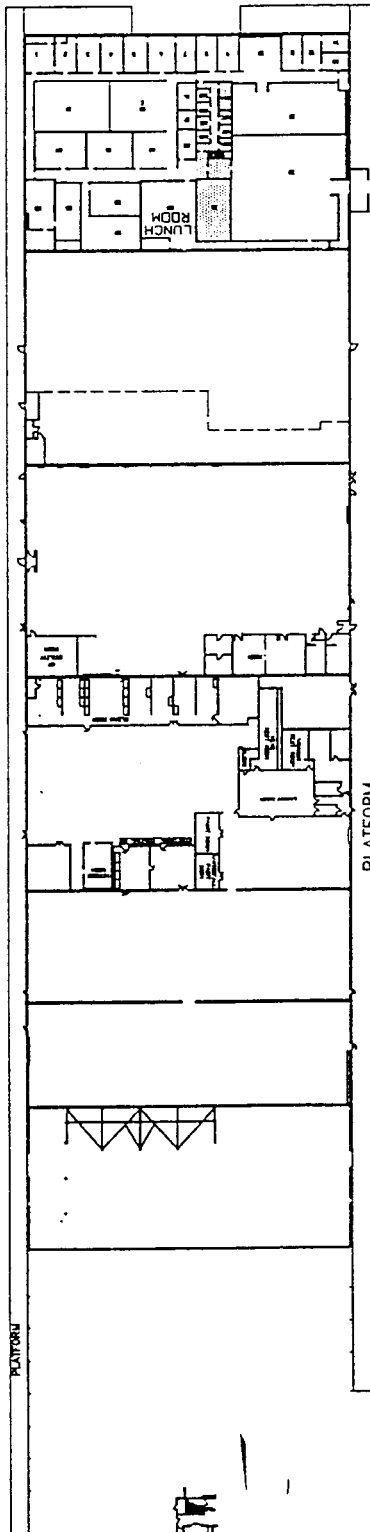
C

D

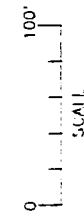
E

F

G



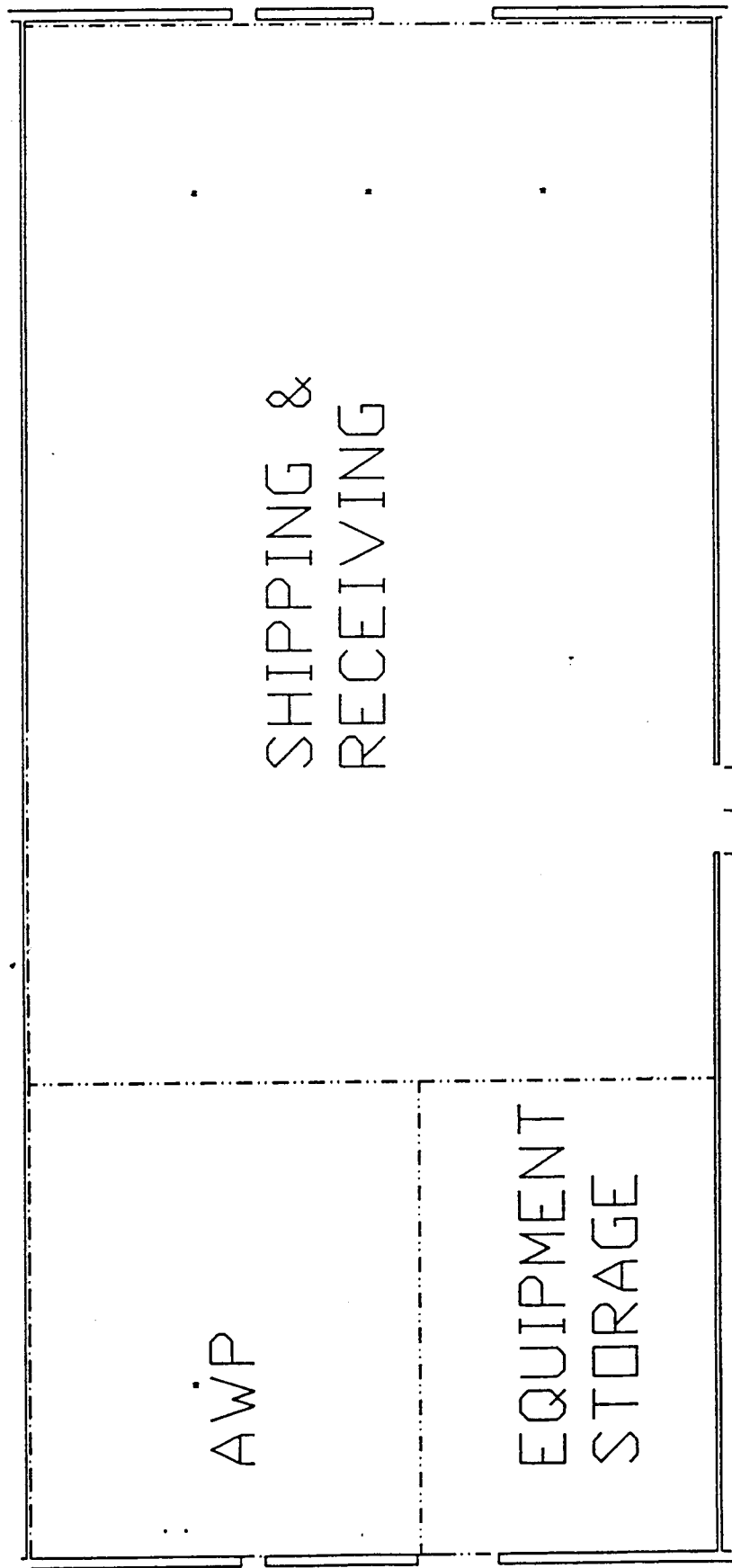
P
(MEZZANINE)



SCALE

BUILDING 5

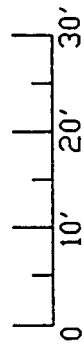




AWP

SHIPPING &
RECEIVING

EQUIPMENT
STORAGE



BLDG 5 BAY B

AUG. 90 SCALE: 1"=20'



H A W K.

13650 SF

PATRIOT ELECTRONICS

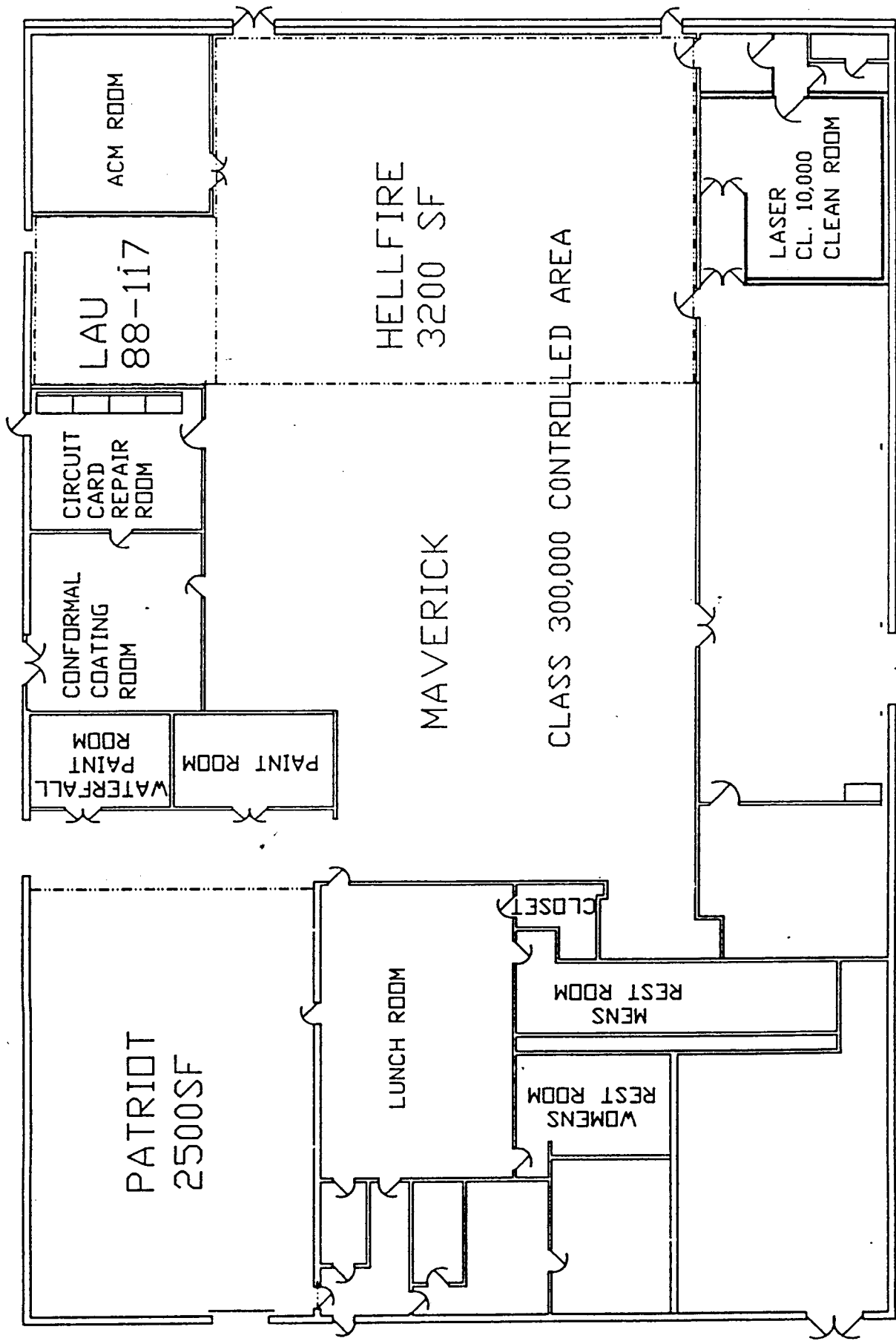
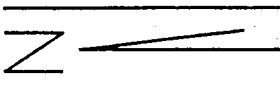
8750 SF

BLDG. 5 BAY C

SCALE 1" = 20'

RELOCATE APQ-120 TO BLDG 214

RELOCATE PLANNING TO BLDG 5 BAY G



BLDG 5 BAY D

SCALE: 1" = 20'

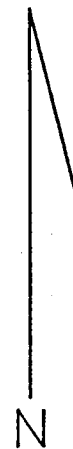
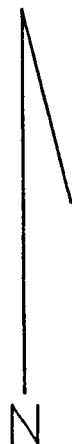
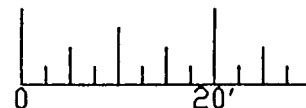
TOW, DRAGON
19,200 SF

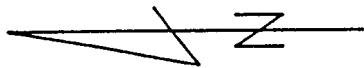
CABLE SHOP MOVE TO BLDG 1208
C130 ANTI SKID MOVE TO BLDG 214
ACMI MOVE TO BLDG 214

BLDG 5 BAY E

July 30, 1990

SCALE: 1" = 20'

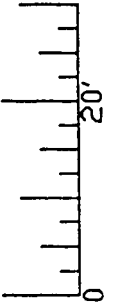


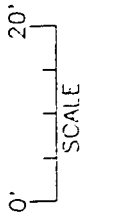
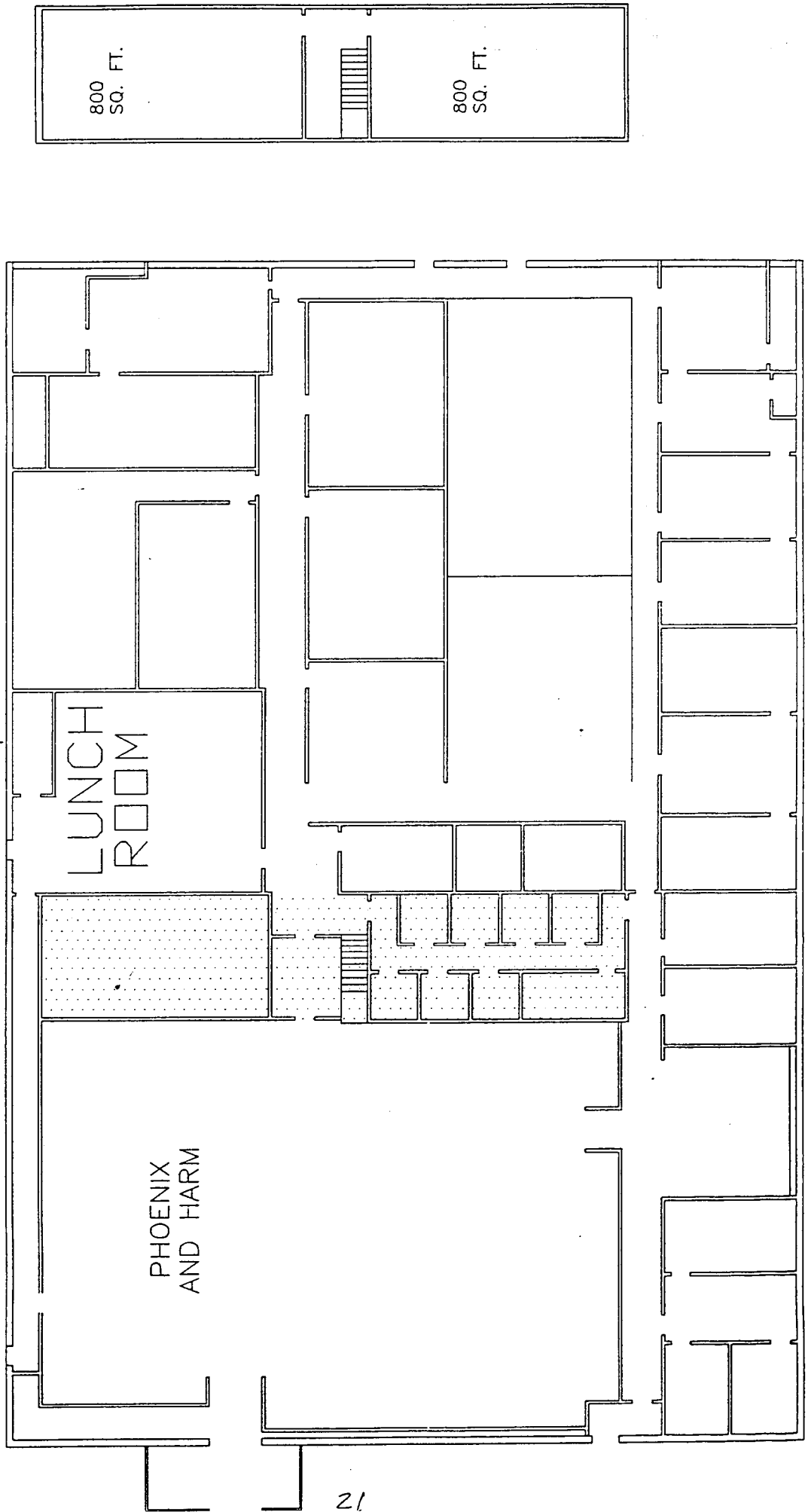


PHOENIX AND HARM
26,000 SF
(INCLUDES PART
OF BAY G)

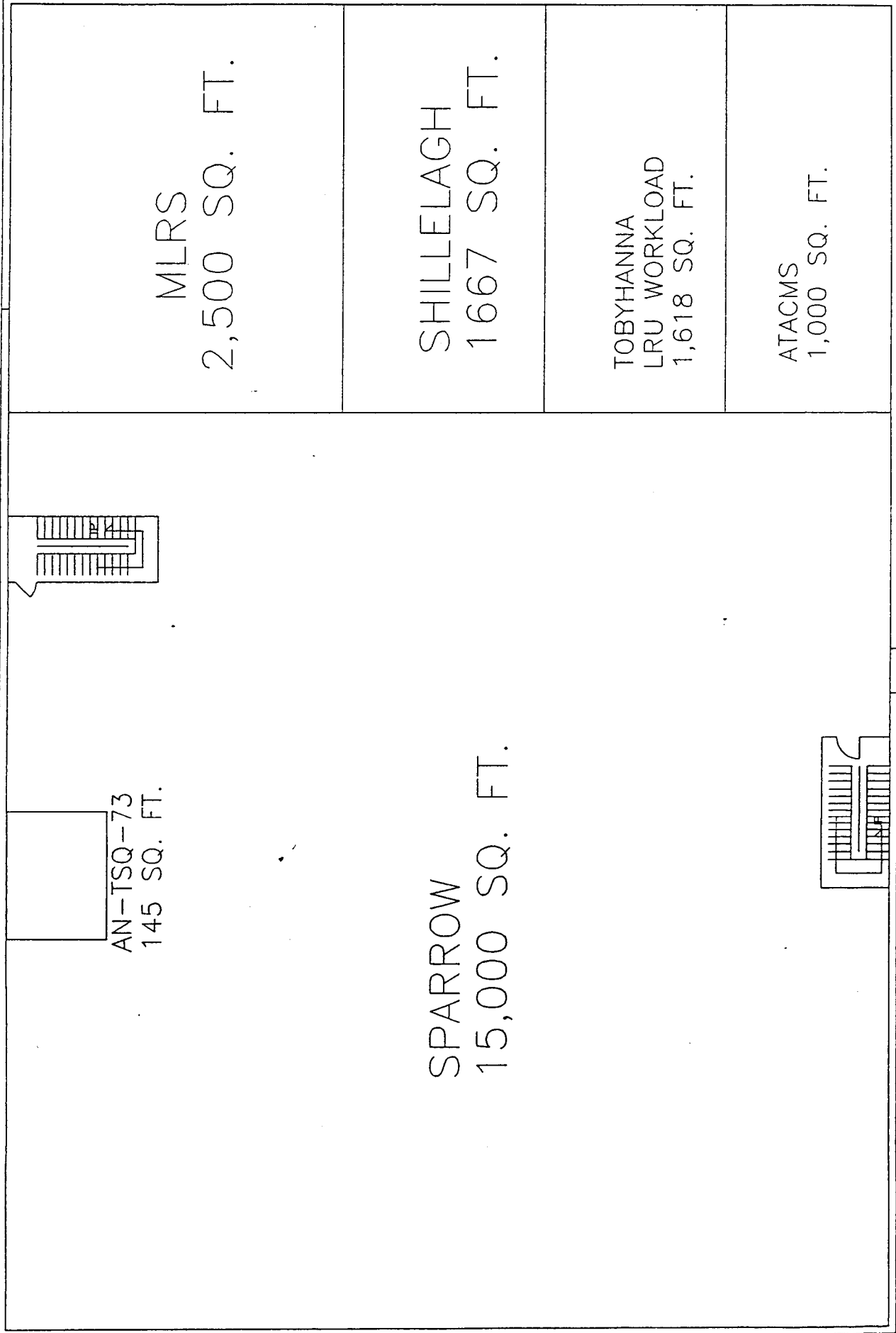
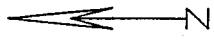
BLDG 5 BAY F

SCALE: 1" = 20'

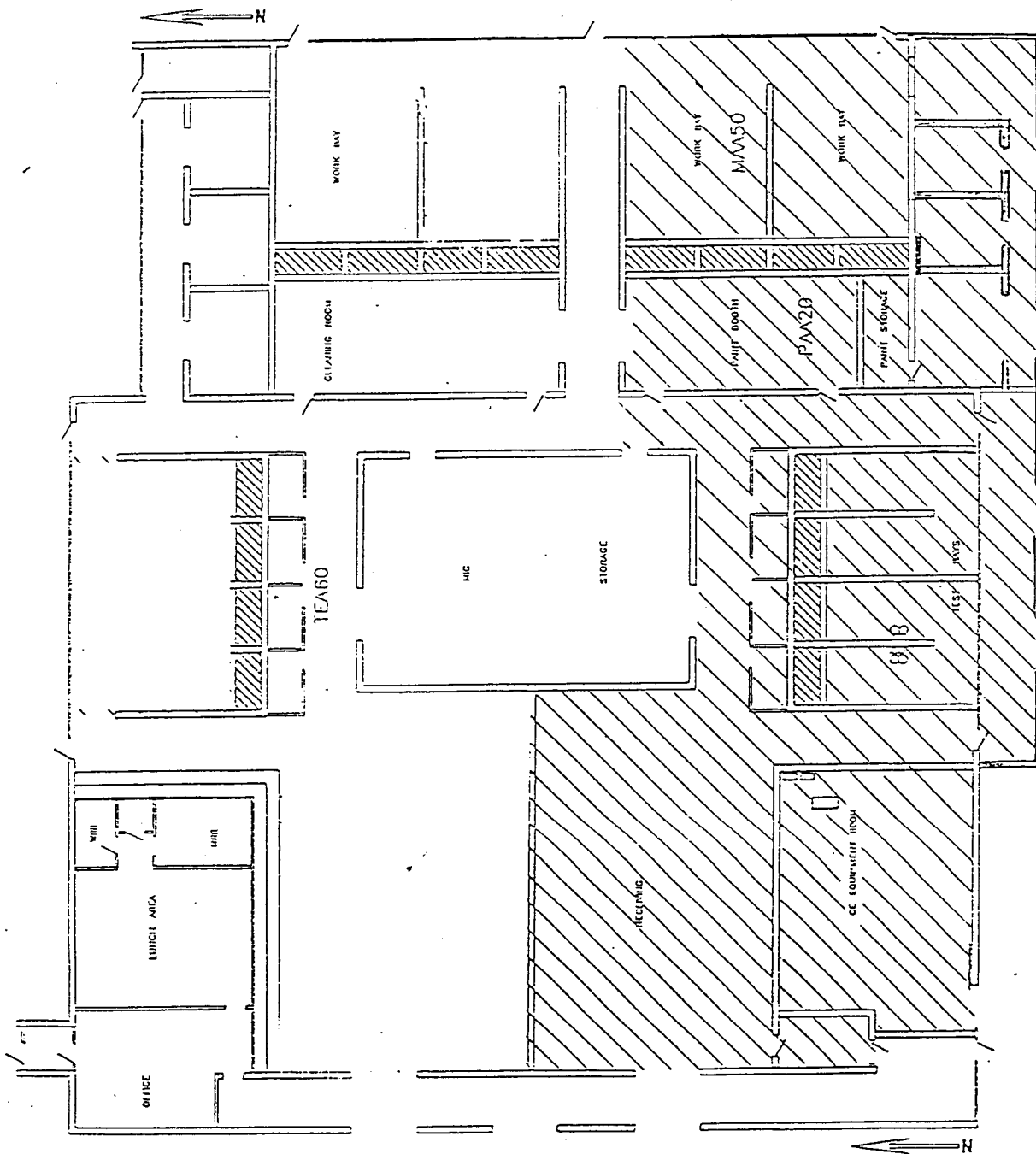




BUILDING 5 BAY G
WITH UPSTAIRS AREA

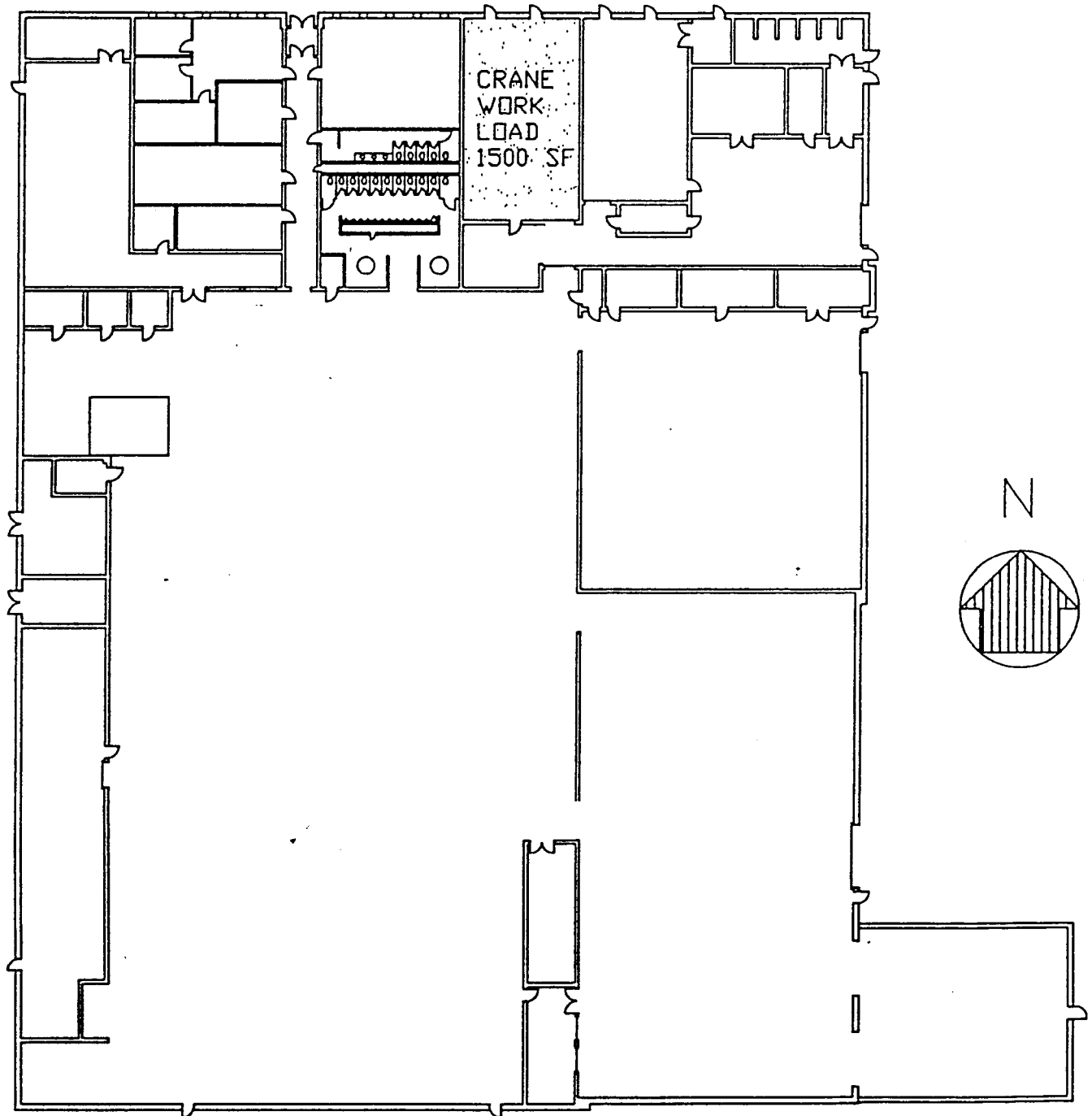


BLDG 5 BAY P
MEZZANINE 300,000 CLASS CONTROL AREA



24,572 SF
(INCLUDES 1800 SF ADDITION)

BLDG 2026 ALL UP ROUND



BUILDING 509

SCALE: 1" = 40'

MANPOWER REQUIREMENTS

Ogden ALC has established manpower requirements to handle the tactical missile maintenance workload. These manpower requirements were determined from the projected core hours for the tactical missile workload in FY99 and using the capacity standard of 1,615 hours/man-year to determine required direct personnel. Requirements for indirect personnel and base operating support personnel were calculated as 17 percent and eight percent of total direct labor respectively. Manpower requirements for the entire core tactical missile workload are as follows:

MANPOWER REQUIREMENTS	
Crane Workload Hours	38,000
Letterkenny Workload Hours	623,000
Tobyhanna Workload Hours	59,000
Red River Workload Hours	58,000
WR-ALC Workload Hours	13,000
TOTAL WORKLOAD HOURS	791,000
Total Direct Labor Required	490 P/Es
Total Indirect Labor Required	83 P/Es
Total Base Operating Support Required	39 P/Es
TOTAL PERSONNEL REQUIRED	612 P/Es

TRAINING PLAN

Ogden ALC has developed a matrix to establish training requirements and expected expenses. This matrix was developed by expanding and modifying the training matrix used by LEAD to establish costs and timing for its transfer plan. The Ogden ALC training plan is based on the assumption that costs for training each individual would remain the same as those outlined in the LEAD plan. In addition, the two assumptions were used to determine the number of personnel that would require training, a) the directed 60 percent transfer rate, b) a 20 percent transfer rate based on LEAD experience. The training matrix also includes estimated costs for workloads not covered by the LEAD plan. Ogden ALC training costs are as follows:

60 percent transfer	\$3.38M
20 percent transfer	\$5.69M

Our training costs are significantly reduced by two factors, a) workloads currently in place, such as AIM-9 and AGM-65, require no additional training, b) sufficient electronics technicians are available at Ogden ALC or in the local area to support this workload, therefore basic electronics training is not necessary.

NOTE: Our projected training costs do not include training required to support the Chaparral or AN/TSQ-73 workloads as most recent information provided through the LEAD transition team identified both systems will be retired in place and not transfer.

SUMMARY

Our analysis demonstrates our ability to easily consolidate the tactical missile workload at Ogden ALC. Optimal use of our existing infrastructure provides the opportunity not only to complete the transition within the present consolidation schedule, but at a much reduced cost. The following information provides an overview of the major issues and concerns to which we were asked to respond.

- No MILCON Required
- Shop Floor Rearrangement and Modification Costs: \$1.8M
- Manpower Authorizations:

Direct Labor	490 P/Es
Indirect Labor	83 P/Es
Base Operating Support	39 P/Es
Total Authorizations	612 P/Es

- Estimated Training Costs:

60 percent transfer	\$3.38M
20 percent transfer	\$5.69M

One of the major cost savings features of this proposal is leaving the current tactical missile workloads, AIM-9 and AGM-65, at Ogden ALC. Doing so will result in a cost avoidance in excess of \$12M. To reap the benefits of this savings, it is necessary to delay the scheduled transfer of these systems to LEAD until a final decision can be made, approximately 120 days. Ogden ALC stands ready to support the tactical missile consolidation decision.

Document Separator

Letterkenny Coalition Comments

WHITE PAPER

ON

COST TO PERFORM TACTICAL MISSILE CONSOLIDATION

AT

ODGEN AIR LOGISTICS CENTER

1. **PURPOSE.** The purpose of this White Paper is to show the actual costs of consolidating tactical missile maintenance at OO-ALC. The costs shown in this paper are based on actual cost to transition missile systems into Letterkenny Army Depot (LEAD) and cost estimates developed by the Joint Service Working Group for Tactical Missile Consolidation. Cost estimates on HAWK and PATRIOT Air Defense Systems transition are developed utilizing LEAD's knowledge and experience on these systems and experience gained transitioning 13 other missile systems to LEAD.

2. **COSTS.** Attached cost data sheets (Encl 1) are from the Department of Defense Tactical Missile Maintenance Consolidation at Letterkenny Army Depot, Base Realignment and Closure 1993, Final Implementation Plan, 06 May 1994. This is the cost data that is used for all systems in this cost comparison except HAWK, PATRIOT, Avenger, and ATAS.

a. **MILCON.** OO-ALC claims a MILCON cost of \$2.79M which includes \$2.0M for a PATRIOT Radar Range, \$0.44M for Building 5 mezzanine, and \$0.35M for ATACMS Building 2214. The cost to build the PATRIOT radar test site at LEAD was \$1.8M in 1988. Today's cost to duplicate would be \$2.0M. This \$2.0M does not include the construction cost to build 2,500 sq ft building which houses the test site simulation equipment. This facility was in place, at LEAD, prior to the building of the radar test site. The cost to construct this building will be \$0.50M. OO-ALC radar test site costs do not include MILCON costs for the HAWK radar test site. The HAWK test site requires a 160,000 sq ft macadam hardpan area at a cost of \$0.476M. HAWK and PATRIOT test site MILCON cost will be \$2.97M. OO-ALC states MILCON costs for Building 2214 are \$0.35M. It was evident during May 95 site visit to OO-ALC that Building 2214 requires major renovation to accept the ATACMS workload. (Encl 2) Renovation cost for Building 2214 is \$3.2M, 59% of construction cost \$5.5M. LEAD has 382,161 sq ft of floor space dedicated to repair of missile systems specified in BRAC 93. An additional 100,000 sq ft of space is required for maintenance of HAWK, PATRIOT and Avenger trucks, shelters, HMMWVs, trailers, launchers, wire harness rebuild, small motor rebuild, power generators, NBC filters, and air conditioning rebuild. OO-ALC tactical missile repair capacity is 46,000 sq ft, expandable by an additional 311,820 sq ft. This expandable space will require minor renovation to meet specific facility requirements associated with each system. Using a very conservative renovation cost of \$15 a sq ft this cost would be \$4.67M. Total MILCON cost for OO-ALC would be \$11.28M. Many of the facilities that OO-ALC intends to use for missile maintenance are reported as substandard for

workload expansion in BRAC 95 Joint Cross Group OO-ALC Depot Maintenance Data Call Supplemental, February 1995. These facilities are Building 5 Bays- C, D, E, P, Building 100 Bays K, M, N. Also OO-ALC facilities plan for missile consolidation shows Stinger being located in Building 5C. Stinger is an explosive Class 1.1 missile and can not be brought into Building 5C. It is obvious that OO-ALC does not have a through grasp on the facilities requirements for tactical missile consolidation and their MILCON costs should be reviewed.

b. Ammunition Storage MILCON. There are 2 options associated with the proposal to move tactical missile consolidation to OO-ALC; 1. Move tactical missiles to OO-ALC and enclave LEAD's ammunition area for conventional ammunition storage. 2. Close LEAD's ammunition area and move tactical missiles to OO-ALC. The storage space requirements for Option 1 tactical missile consolidation are based upon storage space actually occupied at LEAD today for Sparrow, HARM, Phoenix, Sidewinder, AMRAAM, Maverick, and ATACMS, for a total of 350,866 sq ft. After the year 2000, storage requirements will increase by 77K sq ft for ATACMS. Bringing Option 1 minimum storage requirements to 427,866 sq ft. This does not include outyear or possible workload increases. OO-ALC will vacate 87,000 sq ft of strategic ammunition storage space, bringing their total to 187K sq ft. It is recommended that the OO-ALC plan to vacate 87K sq ft of strategic missile storage be closely reviewed; treaty obligations /other will likely require retention of these missiles at OO-ALC returning available missile storage space to 100K sq ft. Accepting that OO-ALC has 187K sq ft of storage space they would require an additional 240,866 sq ft of ammunition storage space.

Construction cost for a Stradley magazine in 1980 was \$125/sq ft per OSD analysis. Increasing that by a factor of .7 to allow for 15 years of inflation places the cost of a single 2,000 gross sq ft magazine at \$425K. To allow for sufficient net space, 121 magazines would be required under Option 1 for a total cost of \$51.4M.. Option 2 ammunition storage MILCON cost would be \$240.12M for construction of 565 magazines. Option 2 storage requirements are based on the 350,866 sq ft currently used at LEAD for tactical missile consolidation plus; Stinger 42K sq ft, Hellfire 288K sq ft, ATACMS 77K sq ft, THAAD 52K sq ft, PATRIOT/HAWK TMRP 506K sq ft. This brings Option 2 storage requirements to 1,315,866 sq ft. OO-ALC would be required to build an additional 1,288,866 sq ft of ammunition storage to support Option 2. The OO-ALC statement that all of the services missiles would be stored at one location, LEAD is not true. The storage space utilized by LEAD is required to perform missile maintenance, certification, awaiting and post maintenance storage, All Up Round testing, awaiting demilitarization, and surveillance testing.

c. Equipment Transfer. OO-ALC states that equipment transfer costs are \$3.696M. The equipment transfer costs to OO-ALC should be \$8.12M. This cost was derived by subtracting the Sidewinder and Maverick equipment transition cost (\$.692M) from the tactical missile consolidation equipment transition cost (\$4.51M) then adding the cost to transition HAWK, Avenger, ATAS, and PATRIOT equipment (\$4.3M). Cost to transition HAWK equipment is \$2.78M, Avenger \$5K, ATAS \$5K, and PATRIOT \$1.5M for a total of \$4.3M. See attached sheets (Encl 3) for HAWK and PATRIOT costs.

d. Inventory Transfer. OO-ALC states that inventory transfer costs are \$3.106M. The inventory transfer costs to OO-ALC should be \$2.435M. This cost was derived by subtracting the Sidewinder and Maverick inventory transition cost (\$.85M) from the tactical missile consolidation inventory transition cost (\$2.475M) then adding the cost to transition HAWK (\$20K) and PATRIOT inventory (\$20K).

e. First Article Test (FAT). OO-ALC states that FAT costs are \$1.063M. The FAT/certification costs to OO-ALC should be \$4.883M. This cost is derived by subtracting the Sidewinder and Maverick FAT cost (\$98K) from the tactical missile consolidation FAT cost (\$677K) then adding the cost of HAWK (\$900K), Avenger (\$5K), ATAS (\$5K), and PATRIOT (\$3.4M). Performance of FAT on 13 missile systems has shown that FAT cost is 50% of the repair/overhaul cost. Fifty percent of the repair/overhaul cost was used to compile FAT costs for HAWK, PATRIOT, ATAS, and Avenger.

f. Training. OO-ALC states that training costs are \$17.5M. The training cost to OO-ALC should be \$29.903M. This cost is derived by subtracting Sidewinder and Maverick training costs (\$3.012M) and basic electronics costs (\$892K) from the tactical missile consolidation training costs (\$10.644M) and then adding training costs for HAWK (\$7.0M), PATRIOT (16.0M), Avenger (\$147K), and ATAS (\$16K). OO-ALC has stated that LEAD's training estimates are inflated because OO-ALC intends to train 50 % of the work force for HAWK and PATRIOT. LEAD's training estimates are based on training approximately 50 % of the workforce for HAWK and PATRIOT. The PATRIOT system represents 302 manyears of workload. LEAD's training estimate is based on training of 145 employees. The HAWK system represents 112 manyears of workload. LEAD's training estimate is based on training of 70 employees. Costs include per deim, TDY, labor, and tuition. Tuition costs are based on information from Raytheon Company and Ordnance, Missiles, and Munitions Center School, Redstone Arsenal, AL. Training costs are based on 1993 dollars. For course breakout, cost, and number of students attending each portion see attached sheets (Encl 4). OO-ALC states they will receive HAWK training at Barstow MCLB, CA. This is not possible the only location capable of giving HAWK Phase 3 training is LEAD.

g. Facility Modification. OO-ALC states their RPM costs are \$.989M. As noted in section 2a of this document, portions of OO-ALC facilities were listed as substandard for expansion, if the cost to correct these deficiencies is not covered under MILCON it should be reflected under facility modification costs. As OO-ALC has no definitive facility plans \$989M will be used in this cost analysis.

h. Operations and Maintenance (O&M) and Operation Procurement Account (OPA). OO-ALC states that their O&M and OPA costs are \$3.216M. Additional costs that should be added to the OO-ALC costs are Sparrow Hydraulic Distribution System \$60K, Sparrow Console HVAC System \$210K, HARM Anechoic Chamber HVAC \$250K, 15 ton overhead crane \$225K, and explosion room to test HAWK hydraulic cylinders \$60K.

Additional costs total \$805K. These costs will likely rise as more requirements are identified.

i. Permanent Change of Station (PCS). OO-ALC PCS costs should be \$6.16M. (101 times \$61K = \$6.16M) This was derived by using a 20% transfer rate from LEAD to OO-ALC (505 personnel times 20% = 101). Cost to transfer one person of \$61K is based on a PCS cost of \$2.712 and real estate cost of \$1.684M that was required to PCS 72 personnel to LEAD.

COST COMPARSION

AREA	OO-ALC	LEAD
MILCON	\$11.28M	\$7.591M
AMMO MILCON		
OPTION 1*	\$51.4M	0
OPTION 2**	\$240.12M	0
EQUIP TRANSFER	\$8.108M	\$4.51M
INVENT TRANSFER	\$3.106M	\$2.178M
FAT	\$4.987M	\$.677M
TRAINING	\$29.903M	\$10.644M
FACILITY MOD	\$.989M	\$.050M
O&M/OPA	\$3.216	\$4.349M
PCS	\$5.400M	\$4.705M
OTHER	0	\$2.225M
TOTAL		
OPTION 1	\$119.949M	\$36.929M***
OPTION 2	\$307.689M	\$36.929M***

* OPTION 1-REALIGN LEAD, ENCLAVE AMMO AREA

** OPTION 2-CLOSE LEAD, INCLUDING AMMO AREA

*** \$26.1 ALREADY EXPENDED

15 SEPTEMBER 94

FY94 SYSTEM REQUIREMENTS BY CATEGORY - ARMY FUNDED

BAC CODE:	11	33	33	3*	3*	34	39	50	3*	32	32	31	
SYSTEM	MILCON	EQUIPMENT TRANSFERS	INVENTORY TRANSFERS	FAT	TRAINING	FACILITY RPM	O&M EQUIPMENT	OPA EQUIPMENT	ICS	PCS	REAL ESTATE	SEVERANCE	TOTAL
All Systems	4,991	292			479		38	1,550					7,350
ATACMS		415	7	89						44	27		582
AVENGER					21								21
DRAGON		54	388	30	141			84		178	108		983
HELLFIRE		26	6	43	17					44	27		163
LCSS													0
SHILLELAGH													0
TOW 2					621								621
TOW COBRA								161					161
MLRS		25	33	20	40		50						168
TOW BFVS		3			413								416
PHOENIX		162		10	316					219	136		843
SPARROW		170		10	325			322		656	409		1,892
NAVY SIDEWINDER		130			852					150	75		1,207
STANDARD													0
HAWK													0
MAVERICK													0
AIR FORCE SIDEWINDER													0
SUBTOTAL	4,991	1,277	434	202	3,225	0	88	2,117	0	1,291	782	0	14,407
DLA			1,021										1,021
GRAND TOTAL	4,991	1,277	1,455	202	3,225	0	88	2,117	0	1,291	782	0	15,428

Encl 2

31 MARCH 95

FY95 SYSTEM REQUIREMENTS BY CATEGORY - ARMY FUNDED

BAC CODE	11	33	33	3*	3*	34	39	50	3*	32	32	31	
SYSTEM	MILCON	EQUIPMENT TRANSFERS	INVENTORY TRANSFERS	FAT	TRAINING	FACILITY RPM	O&M EQUIPMENT	OPA EQUIPMENT	OTHER	PCS	REAL ESTATE	SEVERANCE	TOTAL
All Systems	2,600				289	50	38	350	1,987				5,314
ATACMS													0
AVENGER													0
DRAGON		10					237						247
HELLFIRE		25	38										63
LCSS					283								283
SHILLELAGH													0
TOW II		325	108	35	572					481	331		1,552
TOW COBRA		107	152	25	380					275	189		1,138
MLRS								510					510
TOW BFVS		246	88	23									357
PHOENIX		263											263
SPARROW		385											385
NAVY SIDEWINDER		100	8	32	25								166
STANDARD													0
HAWK		2			17			403		424	241		1,067
MAVERICK					1,541			110		135	80		1,866
AIR FORCE SIDEWINDER		192	30		1,384					108	81		1,783
SUBTOTAL	2,600	1,685	425	115	4,491	50	275	1,373	1,987	1,421	902	0	15,304
DLA (memo entry)		121	227										348
GRAND TOTAL	2,600	1,685	425	115	4,491	50	275	1,373	1,987	1,421	902	0	15,304

FY96 SYSTEM REQUIREMENTS BY CATEGORY - ARMY FUNDED

31 MARCH 95

BAC CODE	11	33	33	3*	3*	34	39	50	3*	32	32	31	
SYSTEM	MILCON	EQUIPMENT TRANSFERS	INVENTORY TRANSFERS	FAT	TRAINING	FACILITY RPM	O&M EQUIPMENT	OPA EQUIPMENT	OTHER	PCS	REAL ESTATE	SEVERANCE	TOTAL
All Systems					495								495
ATACMS													0
AVENGER													0
DRAGON													0
HELLFIRE													0
LCSS		223	61	43	333		50	416		45	31	119	1,341
SHILLELAGH		20	36	12	40					23	16	118	265
TOW II													0
TOW COBRA													0
MLRS		75			5								80
TOW BFVS													0
PHOENIX													0
SPARROW													0
NAVY SIDEWINDER													0
STANDARD		752	127	196	1,093		30			83	101		2,392
HAWK				11									11
MAVERICK		500	55	66									621
AIR FORCE SIDEWINDER				32									32
SUBTOTAL	0	1,570	286	360	1,966	0	80	416	0	161	146	238	6,237
DLA (memo entry)		66	70										136
GRAND TOTAL	0	1,570	296	360	1,966	0	80	416	0	161	146	238	6,237

31 MARCH 85

FY97 SYSTEM REQUIREMENTS BY CATEGORY - ARMY FUNDED

BAC CODE	11	33	33	3*	3*	34	39	50	3*	32	32	31	
SYSTEM	MILCON	EQUIPMENT TRANSFERS	INVENTORY TRANSFERS	FAT	TRAINING	FACILITY RPM	O&M EQUIPMENT	OPA EQUIPMENT	OTHER	PCS	REAL ESTATE	SEVERANCE	TOTAL
All Systems					485								485
AMRAAM (CTR)					437								437
HARM GS (CTR)					30								30
DRAGON													0
HELLFIRE													0
LCSS													0
SHILLELAGH													0
TOW II													0
TOW COBRA													0
MLRS													0
TOW BFVS													0
PHOENIX													0
SPARROW													0
NAVY SIDEWINDER													0
STANDARD													0
HAWK													0
MAVERICK													0
AIR FORCE SIDEWINDER													0
SUBTOTAL	0	0	0	0	962	0	0	0	0	0	0	0	962
DLA		0	0										0
GRAND TOTAL	0	0	0	0	962	0	0	0	0	0	0	0	962

05/03/95 14:20 LEAD SDSLE-R
05/03/95 13:44

(717) 267-8222

P. 001

John,

On 1 May Bob Weber, Glen Messenger, Bill Stone (LEAD AMMO representatives), along with John Lockner, and Woodie Nobel (Hill AFB, ACP AMMO representatives) screened Hill AFB munitions "2" area bldg 2214 for suitability and feasibility for the ARMY TACM AUR (All-Up-Round) depot maintenance. Two additional Air Force military ammunition specialist were on hand to tour the facility.

* Building 2214 is currently a operational demil facility for conventional munitions. This building has more than ample floor space (greater than 16,000 sq. ft.) feasibly to handle the current ATCAM Letterkenny AUR depot mission. However, without "extensive modification" (estimate in excess of several \$million), building 2214 is unusable today for the ATACM Letterkenny mission.

Plans exist to move the current demil operation away from this facility, and unless other uses are identified, building 2214 would be demolished or rendered inert storage. The rationale for this is; building 2214 is adjacent to a Hill AFB natural gas vent area, or POL facility which impedes it's current munitions hazard classification/limit of 425 lbs 1.1 per bay (9 bays). No live munitions operations have been performed in building 2214 for more than one year while the explosive license is under review by the Hill AFB explosive safety community.

* The suitability of 2214 for ATACM operations is not applicable without almost total reconstruction for several reasons:

- A. Outer walls are insufficient, current construction is block vs. poured reinforced concrete.
- B. Ceiling height is inadequate, internal plumbing and pipes limit access to 9 feet or less.
- C. Bays are orientated in a horizontal vs. lateral fashion which would not be conducive to ATACM maintenance. (orientation and alignment to true north is paramount to ATACM depot maintenance)
- D. Environmental considerations do not exist, or are not adequate -A/C, electrical power, high pressure air, lighting...
- E. Overhead cranes are scarce and under rated for ATACM's.
- F. Entry and exit maintenance roll up doors are insufficient height.

MAY-27-1995 11:54 FROM

TO 17172679787 P.13

05/03/95 14:21 LEAD SDSLE-R
05/03/95 13:44

(717) 267-8253 P. 003
P. 002

G. Security alarms exist (IDS), not functioning, with no additional fencing.

John, it is unlikely with any amount of facility construction dollars that bldg 2214 would ever be approved/wavered for explosive safety given the proximity limitations to other obstacles. ATACM's has a large mass detonating warhead compare to other tactical missile with unique AUR testing limitations due to the nature of it's size, weight, and complexity. Please see attached chart for leading chacteristics.

OPTIONAL FORM NO 10 (7-90)	
FAX TRANSMITTAL	
To: JOHN GRAY	From: BILL STONE
Dept/Agency	Phone #
Fax # 78253	Fax #
FORM 7540-01-517-7000 5010-101 GENERAL SERVICES ADMINISTRATION	

PATRIOT MAJOR ITEM AND SYSTEM TRAINING

Item	Tmg	Rqmt	Source	Length Hours	Length Days	Length Weeks	Number Students	Number Trainers	Student Lbr Rate	Trainer Lbr Rate	Per Diem	Auto Rqmt	Car Cost Per Week	Air Rqmt	Air Fare	Student Lbr Cost	Student Per Diem	Student Trav Cst	Student Air Cost	Trainer Lbr Cst	Total Cost
RADAR	Theory		Ft. Bliss	600	75	15	16	1	51	351	90	2	217	16	432	489,600	108,000	6,510	6,912	421,200	1,032,222
	Appl		OJT	1,600	200	40	14	4	51	86	66	1	217	14	418	1,142,400	184,800	8,680	5,852	550,400	1,892,132
ECS	Theory		Ft. Bliss	600	75	15	16	1	51	351	90	2	217	16	432	489,600	108,000	6,510	6,912	421,200	1,032,222
	Appl		OJT	800	100	20	5	2	51	86	66	2	217	5	418	204,000	33,000	8,680	2,090	137,600	385,370
CRG	Appl		OJT	400	50	10	4	2	51	86	66	1	217	4	418	81,600	13,200	2,170	1,672	68,800	167,442
ICC	Appl		OJT	800	100	20	5	2	51	86	66	2	217	5	418	204,000	33,000	8,680	2,090	137,600	385,370
LCHR	Theory		Martin	280	35	7	8	1	51	351	90	2	217	8	624	114,240	25,200	3,038	4,992	98,280	245,750
	Appl		OJT	840	105	21	4	2	51	86	66	1	217	4	418	171,360	27,720	4,557	1,672	144,480	349,789
AMG	Theory		Martin	80	10	2	8	1	51	351	90	2	217	8	624	32,640	7,200	868	4,992	28,080	73,780
	Appl		OJT	560	70	14	4	2	51	86	66	1	217	4	418	114,240	18,480	3,038	1,672	96,320	233,750
PEMC I	Overview		OMMCS	32	4	1	20	1	51	391	86	1	217	20	508	32,640	6,880	174	10,160	31,280	81,134
PEMC II	Overview		OMMCS	240	30	6	20	1	51	391	86	1	217	20	508	244,800	51,600	1,302	10,160	234,600	542,462
P2261	Spec Mech		OJT	240	30	6	8	2	51	86	66	2	217	8	418	97,920	15,840	2,604	3,344	41,280	160,988
System	Gen Maint		OJT	80	10	2	40	40	51	86	66	20	217	40	418	163,200	26,400	8,680	16,720	275,200	490,200
SUBTOTAL																3,582,240	659,320	65,491	79,240	2,686,320	7,072,611
TOTAL																			4,386,291	2,686,320	7,072,611

PATRIOT DEPOT MAINTENANCE PLANT EQUIPMENT TRAINING

Item	Trng Rqmt Source	Length Hours	Length Days	Length Weeks	Number Students	Number Trainers	Student Lbr Rate	Trainer Lbr Rate	Per Diem Rqmt	Auto Rqmt	Car Cost Per Week	Air Rqmt	Air Fare	Student Lbr Cost	Student Per Diem	Student Trav Cost	Student Air Cost	Trainer Lbr Cost	Total Cost
P2271	Theory/OpeRaytheon	200	25	5	10	1	51	1,085,500	90	3	217	10	518	12,750	22,500	3,255	5,180	1,085,500	1,129,185
	Appl OJT	160	20	4	10	2	51	86	66	3	217	10	418	10,200	13,200	2,604	4,180	3,440	33,624
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
P2275	Theory/OpeRaytheon	320	40	8	11	1	51	1,285,400	90	3	217	11	518	22,440	39,600	5,208	5,698	1,285,400	1,358,346
	Appl OJT	320	40	8	11	2	51	86	66	3	217	11	418	22,440	29,040	5,208	4,598	6,880	68,166
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
P2280	Theory/OpeRaytheon	280	35	7	9	1	51	974,200	90	3	217	9	518	16,065	28,350	4,557	4,662	974,200	1,027,834
	Appl OJT	160	20	4	9	2	51	86	66	3	217	9	418	9,180	11,880	2,604	3,762	3,440	30,866
	Maint OJT	80	10	2	2	1	51	86	66	1	217	0	418	1,020	1,320	434	0	860	3,634
P2281	Theory/OpeRaytheon	160	20	4	10	1	51	1,032,700	90	3	217	10	518	10,200	18,000	2,604	5,180	1,032,700	1,068,684
	Appl OJT	160	20	4	10	2	51	86	66	3	217	10	418	10,200	13,200	2,604	4,180	3,440	33,624
	Maint OJT	80	10	2	2	1	51	86	66	1	217	0	418	1,020	1,320	434	0	860	3,634
P2258	Theory/OpeRaytheon	120	15	3	10	1	51	519,900	90	3	217	10	518	7,650	13,500	1,953	5,180	519,900	548,183
	Appl OJT	80	10	2	10	2	51	86	66	3	217	10	418	5,100	6,600	1,302	4,180	1,720	18,902
	Maint OJT	24	3	1	2	1	51	86	66	1	217	0	418	306	396	130	0	258	1,090
P2259	Theory/OpeRaytheon	120	15	3	10	1	51	279,300	90	3	217	10	518	7,650	13,500	1,953	5,180	279,300	307,583
	Appl OJT	80	10	2	10	2	51	86	66	3	217	10	418	5,100	6,600	1,302	4,180	1,720	18,902
	Maint OJT	24	3	1	2	1	51	86	66	1	217	0	418	306	396	130	0	258	1,090
P2234	Theory/OpeRaytheon	200	25	5	8	1	51	774,200	90	2	217	8	518	10,200	18,000	2,170	4,144	774,200	808,714
	Appl OJT	120	15	3	8	2	51	86	66	2	217	8	418	6,120	7,920	1,302	3,344	2,580	21,266
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
PAT 221	Theory/OpeRaytheon	160	20	4	8	1	51	139,200	90	2	217	8	518	8,160	14,400	1,736	4,144	139,200	167,640
	Appl OJT	160	20	4	8	2	51	86	66	2	217	8	418	8,160	10,560	1,736	3,344	3,440	27,240
	Maint OJT	80	10	2	2	1	51	86	66	1	217	0	418	1,020	1,320	434	0	860	3,634
PAT243	Theory/OpeRaytheon	160	20	4	7	1	51	139,200	90	2	217	7	518	7,140	12,600	1,736	3,626	139,200	164,302
	Appl OJT	80	10	2	7	2	51	86	66	2	217	7	418	3,570	4,620	868	2,926	1,720	13,704
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
PAT 244	Theory/OpeRaytheon	160	20	4	7	1	51	139,200	90	2	217	7	518	7,140	12,600	1,736	3,626	139,200	164,302
	Appl OJT	160	20	4	7	2	51	86	66	2	217	7	418	7,140	9,240	1,736	2,926	3,440	24,482
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
PAT 247	Theory/OpeRaytheon	160	20	4	8	1	51	139,200	90	2	217	8	518	8,160	14,400	1,736	4,144	139,200	167,640
	Appl OJT	320	40	8	8	2	51	86	66	2	217	8	418	16,320	21,120	3,472	3,344	6,880	51,136
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
PAT 265	Theory/OpeRaytheon	200	25	5	7	1	51	173,800	90	2	217	7	518	8,925	15,750	2,170	3,626	173,800	204,271
	Appl OJT	80	10	2	7	2	51	86	66	2	217	7	418	3,570	4,620	868	2,926	1,720	13,704
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
P2203	Theory/OpeRaytheon	200	25	5	8	1	51	173,800	90	2	217	8	518	10,200	18,000	2,170	4,144	173,800	208,314
	Appl OJT	80	10	2	8	2	51	86	66	2	217	8	418	4,080	5,280	868	3,344	1,720	15,292
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
P2204	Theory/OpeRaytheon	200	25	5	8	1	51	208,400	90	2	217	8	518	10,200	18,000	2,170	4,144	208,400	242,914
	Appl OJT	160	20	4	8	2	51	86	66	2	217	8	418	8,160	10,560	1,736	3,344	3,440	27,240
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
DLU T.S.	Theory/OpeRaytheon	200	25	5	7	1	51	173,800	90	2	217	7	518	8,925	15,750	2,170	3,626	173,800	204,271
	Appl OJT	40	5	1	7	2	51	86	66	2	217	7	418	1,785	2,310	434	2,926	860	8,315
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
GETS	Theory/OpeRaytheon	160	20	4	10	1	51	139,200	90	2	217	10	518	10,200	18,000	1,736	5,180	139,200	174,316
	Appl OJT	40	5	1	10	2	51	86	66	2	217	10	418	2,550	3,300	434	4,180	860	11,324
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
RDS 500	Theory/OpeRaytheon	160	20	4	3	1	51	248,900	90	1	217	3	518	3,060	5,400	868	1,554	248,900	259,782
	Appl OJT	40	5	1	1	1	51	86	66	1	217	1	418	255	330	217	418	430	1,650
CLET	Theory/OpeRaytheon	80	10	2	3	1	51	100,000	90	1	217	3	518	1,530	2,700	434	1,554	100,000	106,218
	Appl OJT	40	5	1	3	1	51	86	66	1	217	3	418	765	990	217	1,254	430	3,656
	Maint OJT	16	2	0	1	1	51	86	66	1	217	0	418	102	132	87	0	172	493
DIT-MCO	Appl OJT	8	1	0	3	1	51	86	66	1	217	3	418	153	198	43	1,254	86	1,734
	Maint OJT	8	1	0	1	1	51	86	66	1	217	0	418	51	66	43	0	86	246
LCHR	Theory/OpeRaytheon	120	15	3	12	1	51	106,300	90	3	217	12	518	9,180	16,200	1,953	6,216	106,300	139,849
	Appl OJT	40	5	1	12	2	51	86	66	3	217	12	418	3,060	3,960	651	5,016	860	13,547
	Maint OJT	40	5	1	2	1	51	86	66	1	217	0	418	510	660	217	0	430	1,817
PTC-1	Appl OJT	40	5	1	4	2	51	86	66	1	217	4	418	1,020	1,320	217	1,672	860	5,089
	Maint OJT	16	2	1	1	1	51	86	66	1	217	0	418	102	132	217	0	172	623
PTC-2	Appl OJT	40	5	1	4	2	51	86	66	1	217	4	418	1,020	1,320	217	1,672	860	5,089
	Maint OJT	16	2	0	1	1	51	86	66	1	217	0	418	102	132	87	0	172	493

SUBTOTAL 319,872 498,552 77,556 149,778

TOTAL 1,045,758 7,691,884 8,937,642

GRAND TOTAL 16,010,252

HAWK MAJOR ITEM AND SYSTEM TRAINING

Item	Trng Rqmt	Source	Length Hours	Length Days	Length Weeks	Number Students	Number Trainers	Student Lab Rate	Trainer Lab Rate	Per Diem	Auto Rqmt	Car Per Week	Cost Rqmt	Air Fare	Student Lbr Cost	Student Per Diem Cost	Student Trav Cst	Student Air Cost	Trainer Lbr Cost	Total Cost
PCP	Sys Trng	OJT	320	40	8	4	1	51	86	66	1	217	4	418	65,280	14,784	217	1,672	27,520	109,473
HPIR	Sys Trng	OJT	320	40	8	4	1	51	86	66	1	217	4	418	65,280	14,784	217	1,672	27,520	109,473
CWAR	Sys Trng	OJT	320	40	8	4	1	51	86	66	1	217	4	418	65,280	14,784	217	1,672	27,520	109,473
PAR	Sys Trng	OJT	320	40	8	4	1	51	86	66	1	217	4	418	65,280	14,784	217	1,672	27,520	109,473
LCHR	Sys Trng	OJT	320	40	8	4	1	51	86	66	1	217	4	418	65,280	14,784	217	1,672	27,520	109,473
PALLET	Sys Trng	OJT	40	5	1	2	1	51	86	66	1	217	2	418	4,080	924	217	836	3,440	9,497
LDR/LCHR	Sys Trng	OJT	120	15	3	2	1	51	86	66	1	217	2	418	12,240	2,772	217	836	10,320	26,385
SICO	Sys Trng	OJT	860	108	22	20	5	51	86	66	5	217	0	0	877,200	198,660	1,085	0	369,800	1,446,745
SYSTEM	Gen Maint	OJT	120	15	3	40	40	51	86	66	8	217	40	418	244,800	55,440	1,736	16,720	412,800	731,496
SUBTOTAL															1,464,720	331,716	4,340	26,752	933,960	2,761,488
Grp 2	ANX A,B,F,H	OMMCS	614	77	15	4	1	51	391	90	1	217	4	508	125,256	38,682	217	2,032	240,074	406,261
Grp 3	ANX A,C,E	OMMCS	370	46	9	4	1	51	391	90	1	217	8	508	75,480	23,310	217	4,064	144,670	247,741
Grp 4	ANX A,D,F,J	OMMCS	494	62	12	4	1	51	391	90	1	217	8	508	100,776	31,122	217	4,064	193,154	329,333
Grp 5	ANX A,G,K	OMMCS	381	48	10	4	1	51	391	90	1	217	8	508	77,724	24,003	217	4,064	148,971	254,979
Grp 6	ANX A,L	OMMCS	300	38	8	4	1	51	391	90	1	217	8	508	61,200	18,900	217	4,064	117,300	201,681
Grp 7	All Annexes	OMMCS	1,359	108	34	4	1	51	391	90	1	217	4	508	277,236	85,617	217	2,032	531,369	896,471
FME (27J)	Sys Trng	OMMCS	640	80	16	10	1	51	391	90	3	217	10	508	326,400	100,800	651	5,080	250,240	683,171
SUBTOTAL															1,044,072	322,434	1,953	25,400	1,625,778	3,019,637

HAWK DEPOT MAINTENANCE PLANT EQUIPMENT TRAINING

Item	Trng Rqmt	Source	Length Hours	Length Days	Length Weeks	Number Students	Number Trainers	Student Lab Rate	Trainer Lab Rate	Per Diem	Auto Rqmt	Car Cost Per Week	Air Rqmt	Air Fare	Student Lbr Cost	Student Per Diem Cost	Student Trav Cst	Student Air Cost	Trainer Lbr Cost	Total Cost
DTE	Oper	OJT	80	10	2	16	2	51	86	66	4	217	16	418	65,280	14,784	888	6,688	13,760	101,380
	Maint	OJT	40	5	1	3	1	51	86	66	1	217	0	0	6,120	1,386	217	0	3,440	11,163
HFC	Oper	OJT	320	40	8	10	3	51	86	66	3	217	10	418	163,200	36,960	651	4,180	82,560	287,551
	Maint	OJT	80	10	2	3	1	51	86	66	1	217	0	0	12,240	2,772	217	0	6,880	22,109
MATE	Oper	OJT	40	5	1	4	1	51	86	66	1	217	4	418	8,160	1,848	217	1,672	3,440	15,337
	Maint	OJT	80	108	2	2	1	51	86	66	1	217	0	0	8,160	1,848	217	0	6,880	17,105
DATA I/O	Oper	OJT	8	1	0	2	1	51	86	66	1	217	2	418	816	185	217	836	688	2,742
	Maint	OJT	16	2	0	1	1	51	86	66	1	217	0	0	816	185	217	0	1,376	2,594
SCANNER	Oper	OJT	24	3	1	2	1	51	86	66	1	217	2	418	2,448	554	217	836	2,064	6,119
	Maint	OJT	8	1	0	1	1	51	86	66	1	217	0	0	408	92	217	0	688	1,405
A1000	Oper/Maint	Raytheon	80	10	2	4	1	51	100,000	66	1	217	4	578	16,320	3,696	217	0	100,000	120,233
	Appl	OJT	40	5	1	4	1	51	86	66	1	217	4	418	8,160	1,848	217	1,672	3,440	15,337
	Maint	OJT	40	108	1	2	1	51	86	66	1	217	0	0	4,080	924	217	0	3,440	8,661
A2000	Oper/Maint	Raytheon	80	10	2	4	1	51	100,000	66	1	217	4	578	16,320	3,696	217	2,312	100,000	122,545
	Appl	OJT	40	108	1	4	1	51	86	66	1	217	4	418	8,160	1,848	217	1,672	3,440	15,337
	Maint	OJT	40	5	1	2	1	51	86	66	1	217	0	0	4,080	924	217	0	3,440	8,661
3062																				
LO PWR	Oper	OJT	80	10	2	4	1	51	86	66	1	217	4	418	16,320	3,696	217	1,672	6,880	28,785
	Maint	OJT	40	5	1	2	1	51	86	66	1	217	0	0	4,080	924	217	0	3,440	8,661
PULSED	Oper	OJT	80	10	2	4	1	51	86	66	1	217	4	418	16,320	3,696	217	1,672	6,880	28,785
	Maint	OJT	40	5	1	2	1	51	86	66	1	217	0	0	4,080	924	217	0	3,440	8,661
CW	Oper	OJT	80	10	2	4	1	51	86	66	1	217	4	418	16,320	3,696	217	1,672	6,880	28,785
	Maint	OJT	40	108	1	2	1	51	86	66	1	217	0	0	4,080	924	217	0	3,440	8,661
A27	Oper	OJT	80	10	2	4	1	51	86	66	1	217	4	418	16,320	3,696	217	1,672	6,880	28,785
	Maint	OJT	40	5	1	2	1	51	86	66	1	217	0	0	4,080	924	217	0	3,440	8,661</

HAWK EQUIPMENT TRANSFER

Item	Quantity	Inventory	Pack	Pack	Pack	Ship	Unpac	Unpac	Inventory	Calibration	Calibration	Install	Self-Check	Self-Check	Self/Check	Contract	Ship/Rec	Calibrate	Install/Chk	Total
	Hours	Hours	Labor	Material	Cost	Labor	Hours	Hours	Hours	Labor	Labor	Hours	Source	Hours	Labor		Cost	Cost	Cost	Cost
CONSOLES ONLY																				
DTE	15	4	8	86	400	100	62	2	2	60	70	8	LEAD/TOAD	32	74	0	26,700	63,000	42,960	132,660
cables	1	24	8	86	200	100	62	8	16		0	0		0	74	0	4,540	0	0	4,540
adapters	1	16	8	86	800	400	62	8	16		0	0		0	74	0	4,752	0	0	4,752
accessories	15	24	40	86	400	100	62	40	24	40	70	6		0	74	0	149,580	42,000	5,580	197,160
aux. console:	15	40	40	86	100	100	62	40	40	256	70	4		0	74	0	180,600	268,800	3,720	453,120
HFC	9	8	6	86	400	100	62	4	4	80	70	8	LEAD/TOAD	32	74	0	19,800	50,400	25,776	95,976
cables	2	16	8	86	200	100	62	8	16		0	4		0	74	0	7,704	0	496	8,200
adapters	2	16	8	86	800	400	62	8	16		0	4		0	74	0	9,504	0	496	10,000
accessories	9	16	16	86	400	200	62	16	8	24	70	6		0	74	0	43,560	15,120	3,348	62,028
MATE	2	4	8	86	800	100	62	2	8	12	70	12	LEAD/TOAD	40	74	0	5,104	1,680	7,408	14,192
adapters	2	40	32	86	1,000	400	62	24	32	0	0	8		0	74	0	22,128	0	992	23,120
accessories	2	24	8	86	200	100	62	16	24	24	70	4		0	74	0	11,064	3,360	496	14,920
DATA I/O	2	4	4	86	400	100	62	2	4	24	70	8	LEAD/TOAD	8	74	0	3,120	3,360	2,176	8,656
accessories	2	8	4	86	200	100	62	2	4	0	0	2		0	74	0	3,408	0	248	3,656
SCANNER	1	4	2	86	400	100	62	2	4	48	70	8	LEAD/TOAD	16	74	0	1,388	3,360	1,680	6,428
A1000	2	4	8	86	400	200	62	2	4	48	70	8	LEAD/TOAD	40	74	16,000	4,008	6,720	22,912	49,640
accessories	2	12	16	86	200	100	62	8	10	36	70	6		0	74	0	7,648	5,040	744	13,432
A2000	1	4	8	86	400	200	62	2	4	24	70	8	LEAD/TOAD	40	74	16,000	2,004	1,680	19,456	39,140
accessories	1	16	16	86	200	100	62	12	12	24	70	6		0	74	0	4,540	1,680	372	6,592
3062																				
LO PWR	1	4	8	86	400	100	62	4	4	24	70	8	LEAD/TOAD	40	74	0	2,028	1,680	3,456	7,164
PULSED	1	4	8	86	400	100	62	4	4	24	70	8	LEAD/TOAD	40	74	0	2,028	1,680	3,456	7,164
CW	1	4	8	86	400	100	62	4	4	24	70	8	LEAD/TOAD	40	74	0	2,028	1,680	3,456	7,164
accessories	1	24	24	86	400	200	62	16	16	24	70	8		0	74	0	6,712	1,680	496	8,888
A27	1	4	8	86	400	100	62	4	4	24	70	8	LEAD/TOAD	40	74	0	2,028	1,680	3,456	7,164
accessories	1	40	40	86	400	100	62	32	32	80	70	8		0	74	0	11,348	5,600	496	17,444
G88A	1	4	8	86	400	100	62	4	4	24	70	8	LEAD/TOAD	40	74	0	2,028	1,680	3,456	7,164
accessories	1	16	16	86	200	100	62	12	12	32	70	8		0	74	0	4,540	2,240	496	7,276
G85A	1	4	8	86	400	100	62	4	4	24	70	8	LEAD/TOAD	40	74	0	2,028	1,680	3,456	7,164
accessories	1	16	16	86	200	100	62	12	12	32	70	8		0	74	0	4,540	2,240	496	7,276
IH210	1	4	8	86	400	100	62	4	4	24	70	8	LEAD/TOAD	40	74	0	2,028	1,680	3,456	7,164
accessories	1	16	16	86	200	100	62	12	12	32	70	8		0	74	0	4,540	2,240	496	7,276
A26	1	4	8	86	400	100	62	4	4	24	70	8	LEAD/TOAD	40	74	0	2,028	1,680	3,456	7,164
accessories	1	16	16	86	200	100	62	12	12	32	70	8		0	74	0	4,540	2,240	496	7,276
A31	1	4	8	86	400	100	62	4	4	24	70	8	LEAD/TOAD	40	74	0	2,028	1,680	3,456	7,164
accessories	1	16	16	86	200	100	62	12	12	32	70	8		0	74	0	4,540	2,240	496	7,276
PAT RANGE	1	6	0	86	0	0	62	0	6	0	0	0		0	74	1,500,000	888	0	0	1,500,888
SUBTOTAL													1,532,000 571,052 499,800 173,436 2,776,288							

PATRIOT EQUIPMENT TRANSFER

Item	Quantity	Inventory				Ship	Unpack				Inventory	Calibration	Calibration	Install	Self-Check		Self-Check	Contract	Ship/Rec	Calibrate	Install/Chk	Total
		Hours	Pack	Pack	Pack		Labor	Hours	Hours	Hours					Hours	Labor						
P2271	1	4	60	86	800	300	62	40	4	0	0	60	LEAD/TOAD	240	74	68,000	9,332	0	21,480	98,812		
accessories	1	8	16	86	400	200	62	8	4	0	0	16		0	74	0	3,408	0	992	4,400		
P2275	1	4	60	86	800	300	62	40	4	0	0	60	LEAD/TOAD	240	74	68,000	9,332	0	21,480	98,812		
accessories	1	8	16	86	400	200	62	8	4	0	0	16		0	74	0	3,408	0	992	4,400		
P2260	1	4	60	86	800	300	62	40	4	0	0	60	LEAD/TOAD	240	74	68,000	9,332	0	21,480	98,812		
accessories	1	8	16	86	400	200	62	8	4	0	0	16		0	74	0	3,408	0	992	4,400		
P2261	1	4	60	86	800	300	62	40	4	0	0	60	LEAD/TOAD	240	74	68,000	9,332	0	21,480	98,812		
accessories	1	8	16	86	400	200	62	8	4	0	0	16		0	74	0	3,408	0	992	4,400		
P2258	1	4	60	86	800	200	62	40	4	0	0	60	LEAD/TOAD	120	74	18,000	9,232	0	12,600	39,832		
accessories	1	8	16	86	400	200	62	8	4	0	0	16		0	74	0	3,408	0	992	4,400		
P2259	1	4	60	86	800	200	62	40	4	0	0	60	LEAD/TOAD	120	74	18,000	9,232	0	12,600	39,832		
accessories	1	8	16	86	400	200	62	8	4	0	0	16		0	74	0	3,408	0	992	4,400		
P2234	1	6	60	86	800	200	62	24	8	40	70	60	LEAD/TOAD	120	74	18,000	8,660	2,800	12,600	42,060		
accessories	1	8	16	86	400	200	62	8	4	0	0	16		0	74	0	3,408	0	992	4,400		
PAT 221	1	8	40	86	800	200	62	24	8	40	70	60	LEAD/TOAD	120	74	10,000	7,112	2,800	12,600	32,512		
accessories	1	8	16	86	400	200	62	8	4	32	70	16		0	74	0	3,408	2,240	992	6,640		
PAT 243	1	80	60	86	800	400	62	40	24	24	70	320	LEAD/TOAD	40	74	90,000	17,208	1,680	32,800	141,688		
accessories	1	8	16	86	400	200	62	8	4	32	70	16		0	74	0	3,408	2,240	992	6,640		
PAT 244	1	80	60	86	800	400	62	40	24	24	70	240	LEAD/TOAD	80	74	68,000	17,208	1,680	20,800	107,688		
accessories	1	8	16	86	400	200	62	8	4	32	70	16		0	74	0	3,408	2,240	992	6,640		
PAT 247	1	80	60	86	800	400	62	40	24	24	70	240	LEAD/TOAD	80	74	68,000	17,208	1,680	20,800	107,688		
accessories	1	8	16	86	400	200	62	8	4	32	70	16		0	74	0	3,408	2,240	992	6,640		
PAT 265	1	60	40	86	800	400	62	40	24	36	70	160	LEAD/TOAD	60	74	24,000	13,768	2,520	14,360	54,648		
accessories	1	8	16	86	400	200	62	8	4	32	70	16		0	74	0	3,408	2,240	992	6,640		
P2203	2	60	40	86	400	200	62	24	24	36	70	80	LEAD/TOAD	60	74	36,000	24,352	5,040	18,800	84,192		
accessories	1	8	16	86	400	200	62	8	4	32	70	16		0	74	0	3,408	2,240	992	6,640		
P2204	2	60	40	86	400	200	62	24	24	36	70	40	LEAD/TOAD	40	74	10,000	24,352	5,040	10,880	50,272		
accessories	1	8	16	86	400	200	62	24	4	32	70	16		0	74	0	4,400	2,240	992	7,632		
DLU T.S.	1	4	40	86	400	200	62	24	24	24	70	40	LEAD/TOAD	40	74	10,000	7,360	1,680	5,440	24,480		
accessories	1	4	8	86	200	100	62	6	4	12	70	8		0	74	0	1,952	840	496	3,288		
GETS 1000D	1	8	40	86	800	400	62	24	32	80	70	24	LEAD/TOAD	16	74	0	8,800	5,600	2,672	17,072		
GETS 1000B	4	8	40	86	1,000	400	62	24	32	80	70	24	LEAD/TOAD	16	74	0	36,000	22,400	10,688	69,088		
adapters	2	24	24	86	200	100	62	16	8	0	0	4		0	74	0	11,832	0	496	12,328		
programs	2	24	24	86	200	100	62	16	8	0	0	4		0	74	0	11,832	0	496	12,328		
RDS 500	2	4	16	86	200	100	62	8	4	0	0	24	LEAD/TOAD	80	74	48,000	5,528	0	14,816	68,344		
CLET	1	4	8	86	200	100	62	4	4	16	70	16	LEAD/TOAD	16	74	0	1,828	1,120	2,176	5,124		
LCHR	2	6	16	86	400	200	62	8	6	0	0	40	LEAD/TOAD	24	74	30,000	6,720	0	8,512	45,232		
PTC-1	3	8	4	86	200	200	62	4	8	36	70	8	LEAD/TOAD	1	74	0	6,528	7,560	1,710	15,798		
PTC-2	2	8	4	86	200	200	62	4	8	36	70	8	LEAD/TOAD	1	74	0	4,352	5,040	1,140	10,532		
DIT-MCO	3	4	8	86	400	200	62	4	4	8	70	24	LEAD/TOAD	16	74	0	6,384	1,680	8,016	16,080		
adapters	1	40	40	86	400	200	62	16	40	0	0	16		4	74	0	10,952	0	1,288	12,240		
Shielded roof	1		80	86	400	500	62	8	0	0	0	160	LEAD/TOAD	4	74	0	8,276	0	10,216	18,492		
Bench Stock	1	48	8	86	800	200	62	8	48	0	0	4		0	74	0	9,288	0	248	9,536		
Cable/Harn	1	24	16	86	400	400	62	8	12	0	0	4		0	74	0	5,480	0	248	5,728		
Library	1	48	24	86	400	400	62	24	48	0	0	48		0	74	0	11,456	0	2,976	14,432		
SUB TOTAL																720,000	388,932	84,840	340,282	1,534,054		
TOTALS																2,252,000	959,984	584,640	513,718			
GRAND TOTAL																				4,310,342		

Document Separator

U T A H

**1995 DEFENSE BASE CLOSURE
&
REALIGNMENT COMMISSION**

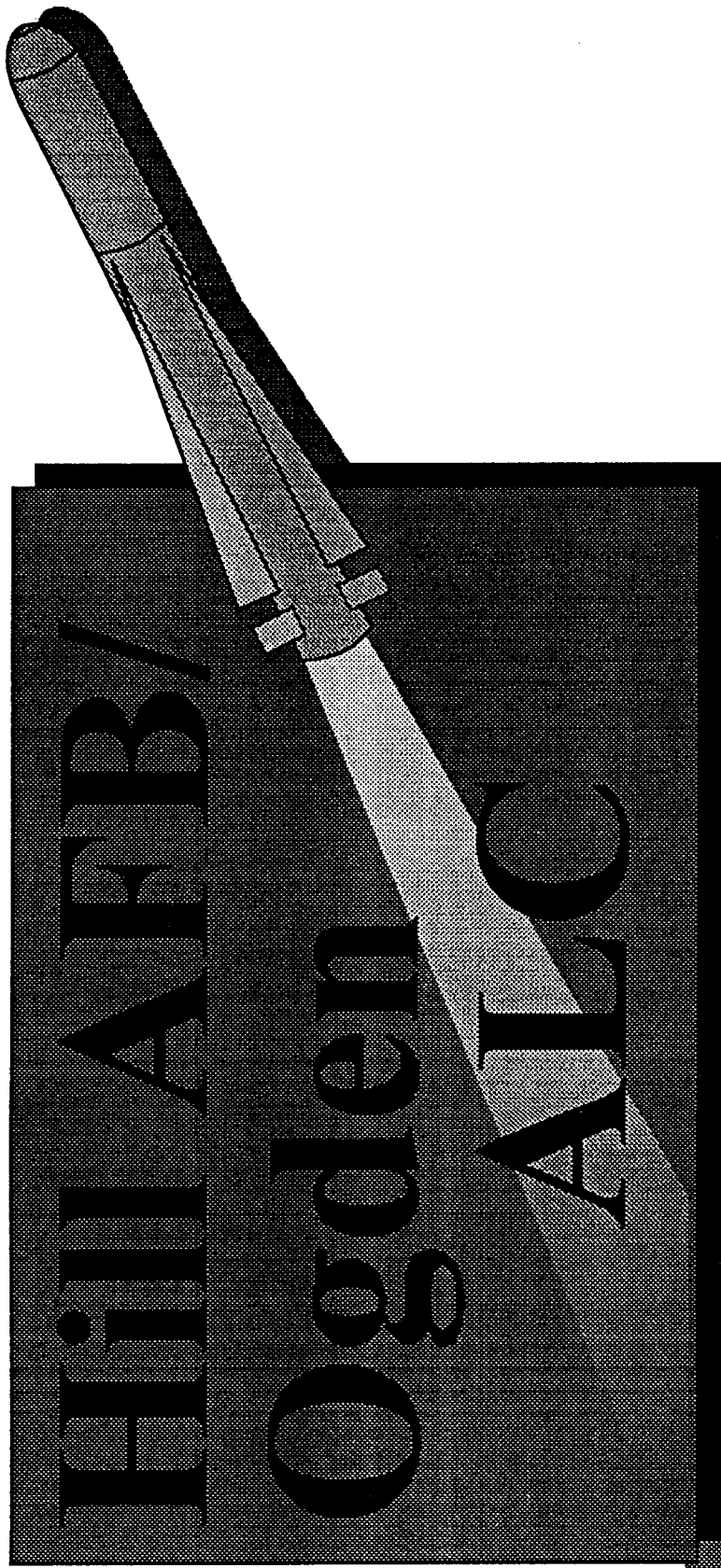
REGIONAL HEARING

**DEFENSE DEPOT
OGDEN UTAH**

**DUGWAY PROVING
GROUND**

**HILL A.F.B./OGDEN
AIR LOGISTICS CENTER**

Air Force Team Leader Frank Cirillo



Maj Gen Mike Pavich
(USAF Ret.)
Hill/DDO '95

Integrating Tomorrow's Technology...Today



Hill AFB, A TIER I Base

- Rated Tier I For Installation Military Value By
USAF
- Rated Tier I For Depot Military Value By
USAF
- Rated Tier I USAF Depot by DoD JCSCG/DM

The Only Depot So Rated

Integrating Tomorrow's Technology...Today



A Major Opportunity for Consolidation

- Hill AFB will Satisfy USAF and DoD Future Force Structure Requirements
- UTTR and Unique Utah Environment Provide Outstanding Opportunities for DoD Consolidation
- Optimizing These Facilities and Capabilities is Good Business for DoD
- Major Opportunity is available for Joint Consolidation

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Background

- BRAC 93 Consolidated Tactical Missile Work
- Commission Found:
 - Consolidation of Tactical Missile Maintenance at a Single Depot was a Valid Plan Worthy of Implementation
 - To Create Efficiency and Reduce Cost

Background

➤ Army Audit Agency Concluded

- Savings Realized from Consolidation at Letterkenny Army Depot Equivalent to Savings from Proposed Realignment

“ IF “

- All Workload Including Private Sector Moved to Letterkenny - 2.2M Direct Labor Hours

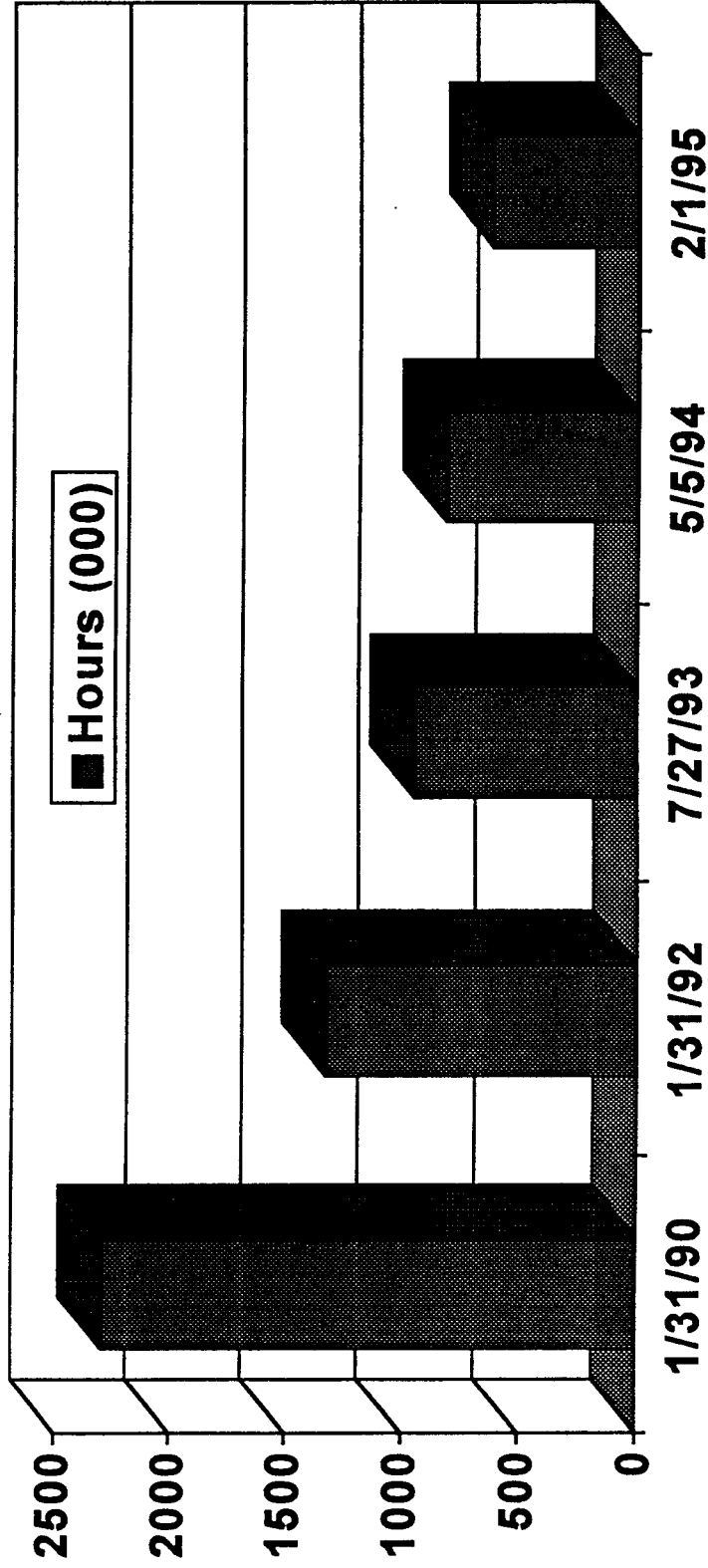
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Background

- BRAC 93 Consolidate Tactical Missile Work
 - Projected Workload Decreased to 623K DLH
 - LEAD No Longer a Viable Candidate for This Consolidation
- Army has Recommended Disestablishment of LEAD

Background

Tactical Missiles Consolidation Workload Changes (LEAD)



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Background

- DoD Recommended Disestablishment of the LEAD
- 1995 DoD Recommendations
 - Guidance & Control to Tobyhanna AD
 - Guidance & Control Plus Towed and Self-Propelled Vehicles to Anniston AD
 - Hawk Missile System to Barstow USMC Depot
 - AUR & Storage For Four (4) Systems Remain at Letterkenny AD
- Nullifies 93 BRAC Consolidation Decision

Alternative Solution

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Alternative Solution

- Hill AFB Provides a Viable Alternative
 - 35 Years of Missile Experience
 - USAF Consolidated Workload at Hill AFB 1970's
 - Significant Amount of DoD Organic Tactical Missile Workload
 - 43% GCS
 - 150,000 DLH Launcher and Vehicle Workload

DoD Tactical Missile Guidance and Control Workload (000 DLH)*

Total	Hill Current	LEAD Current	Barstow Current	Future (Contract)
283.6	121.8	43.4	30	88.4
100%	43%	15%	11%	31%

*Hours are Based on Projected FY99 Workload

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Why Hill AFB?

- Total Organic Missile Workload
 - Vehicles, Launchers, GCS, AUR, Launch Control

All Repair

OOA/ALC Repair

Assets	Direct Labor Hrs (K)	Direct Labor Hrs (K)	%
USAF	730.5	717.5	98
DoD	1687	745.9	44

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USAF Investment

- Significant Investment at Hill AFB to Consolidate Engineering, Test, and Repair
- Allows:
 - Synergy Between Strategic Missiles and Tactical Missiles
 - Optimizes Customer Support By Sharing of Overhead Costs Between Missile Systems

Alternative Solution (Cont)

- Capability Exists to Consolidate DoD Tactical Missile Workload
 - Support Equipment
 - GCS
 - AUR
 - Launchers
 - Vehicles
- Full Service Missile Support
- Established Infrastructure

Hill AFB Designated Tier I Depot

Current Interservicing

➤ Technical/Engineering

- Maverick - (Navy, Marines, USAF)
- Paveway - (Mod - Navy, Marines)
- Harm - (Navy containers)
- AIM-9 - (Navy, USAF)

➤ Testing

- Paveway - Maverick - AMRAAM (Navy, USAF)
- HARM - (Navy, USAF)
- Sparrow - (Navy, USAF)

➤ Depot

- Maverick - Sidewinder - Paveway - SLAM
- Launchers (Navy, Marines)
- HARM Containers (Navy)

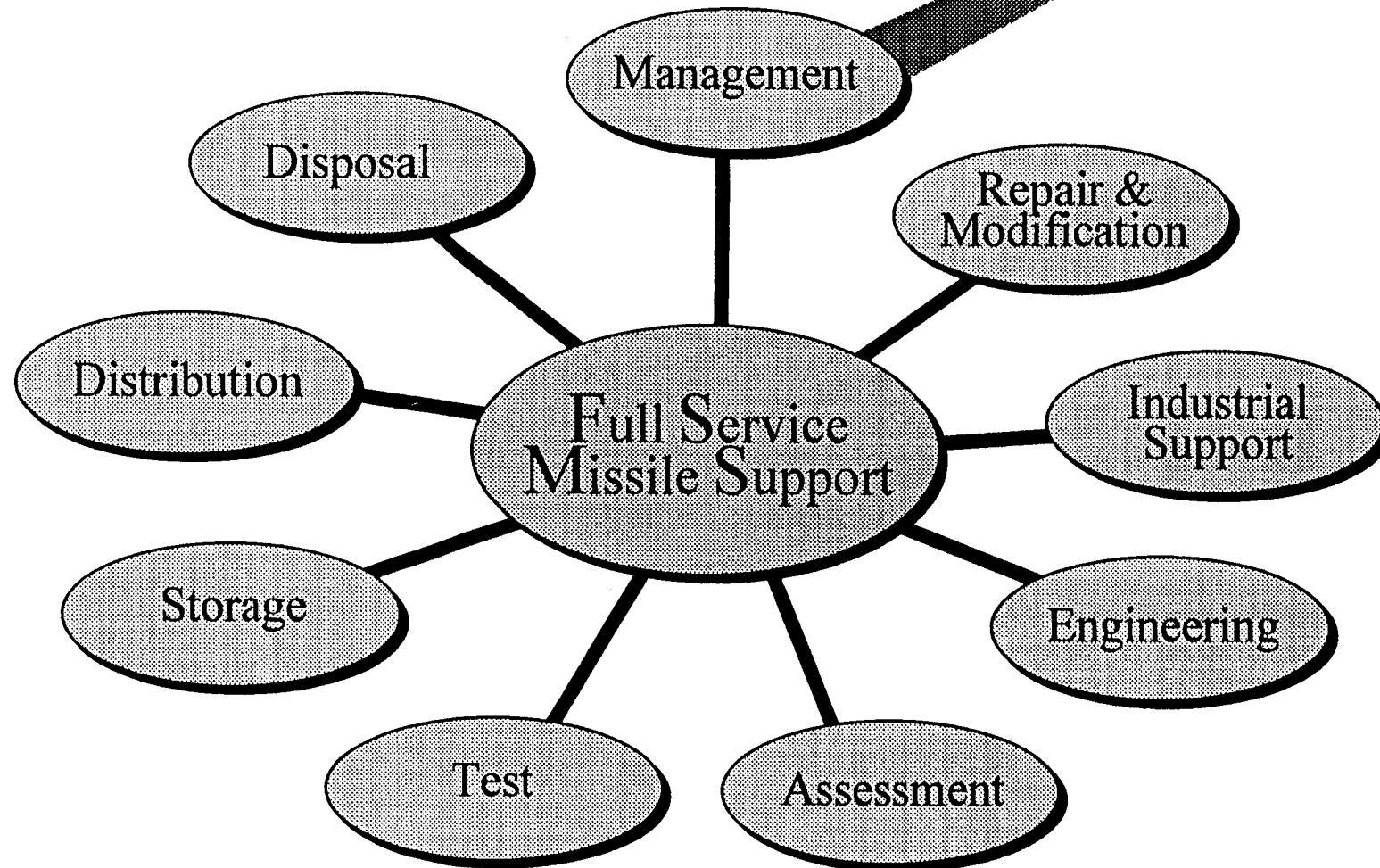
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Missiles of the Future

- Consolidation Decision Drives Future Repair Locations
- Tactical Missiles of the Future Will Include Stealth Technology

Hill AFB Has Only Missile Stealth Capability in DoD Today

Consolidate At Ogden



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Tactical Missile Workload Transition Plan

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Transition Plan

- ▶ Hill AFB Can Handle All DOD Workload
 - Existing Capability
 - 56,810 ft² Expandable by 165,000 ft²
 - Skills Already in Place
 - No MILCON
 - Minor Upgrades
 - Move Equipment Not Already at Hill AFB
- ▶ Meet BRAC 93 Schedule
- ▶ Cost Savings - \$3M

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Cost Savings

➤ Original BRAC Consolidation at LEAD	\$51M
• Committed	<u>\$16M</u>
• Remaining	\$35M
➤ Consolidate 93 Workload At Hill	\$26M
• JCSG/DM Consolidation	<u>6M</u>
• Red River (Vehicles and Launchers)	\$32M
• Tobyhanna (Missile Components)	
• Crane (Fuzes)	
• Black World	
➤ Savings	\$3M

Transition Plan

➤ Integrate Immediately

- No MILCON/Upgrade
- Workload Already In-Place

● Workload	Bldg
• AUR	2026
• Sidewinder (AF, Navy)	100
• Maverick (AF, Navy, USMC)	5
• Hellfire (Army)	5
• SLAM (Navy)	5

Transition Plan

➤ Remaining Workload

- No MILCON

- Minor Upgrades

- Common Skills

- Workload

- Dragon

- Phoenix

- Shillelagh

- Sparrow

- TOW II

- MLRS

- LCSS

- TOW Launcher

- TOW BFFS

Bldg

5

5

5

5

5

5, 847

847

847

847

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Transition Plan

➤ Remaining Workload (Cont)

● Workload*	Bldg
• AMRAAM	100
• Standard	100
• Avenger	100, 847
• Red River Workload	847
• Patriot	5, 847
• HAWK	5, 847
• Tobyhanna Workload	5, 100
• HARM	5
• ATACMS	5
• Crane Workload	509
• Black World	1515

*Transition Must Start Immediately Upon BRAC 95 Decision

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DoD Tactical Missile Workload

➤ Present Tactical Missile Workload

➤ Depot

➤ LEAD

DL H (000)

623

➤ Additional Workload

- Red River (Vehicle and Launchers)

59

- Crane (Fuzes)

38

- Tobyhanna (Missile Components)

58

- Black World

13

- Subtotal

168

➤ Total

791

Transition Plan - Capabilities

► Skills

- Technician and Engineering
- Guidance and Control Section (GCS)
- Launchers
- Hardware and Software Repair/Modification
- AUR Maintenance and Testing
- Vehicle and Erector Maintenance
- ICBM Transporter Erector

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Facilities

- No MILCON, only minor modifications
- Consolidation of Workload
 - Letterkenney, Tobyhanna, Red River LRUs
 - Bldg 5B, C, D, E, F, G, P, M (2 Radar Ranges)
 - Bldg 100 A, K, L, N
 - Crane Fuse Work
 - Bldg 509
 - Tactical Missile Vehicles
 - Bldg 847
 - WR-ALC (Black)
 - Bldg 1515
 - Letterkenney
 - Bldg 2026, 1825, 1826

Summary

➤ Facilities

- NO MILCON

➤ Costs

- Hill: \$32M Total
- LEAD: \$35M Remaining
- Savings of \$3M

➤ Skills

- Ogden Has Trained and Experienced Workforce in Tactical Missile Maintenance
- Ogden is Producing Production Quantities NOW

➤ Schedule

- Implement Immediately
- Complete All Transitions by FY99

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Summary (Cont)

- Ogden ALC Provides Full Service Missile Support
 - Support Infrastructure in Place and Producing
 - Facilities Available - No Milcon
 - Skills, Experience and Technology in Place
 - Over 30 Years Experience--Most Extensive in DoD
- Consolidation/Interservicing of Tactical Missile Workload Makes Sense
- Current Cost Savings in Question With Drop in Workload Hours



Conclusions

➤ Tactical Missile Consolidation Makes Sense at Hill AFB

- Can Accommodate Entire DoD Workload
- Provides Full Service Support
- Postured for Future Technologies (Stealth)
- Minimizes Impact to the Customer

Meet Original BRAC Schedule
Save Millions

Integrating Tomorrow's Technology...Today

HILL AIR FORCE BASE

Ogden Air Logistics Center

"An American Aviation Treasure for more than 50 years"

Hill Air Force Base (AFB), located in Ogden, Utah, has played a crucial role in projecting democracy around the world for more than 50 years. Home to the Ogden Air Logistics Center, two of the Air Force's premier fighter wings and one of the Defense Department's computer megacenters, the 15,684 military, civilian and Air Force Reserve members continue to be called upon any time the nation responds to a crisis in the world.

Experts in Fighter Aircraft Repair

Ogden Air Logistics Center provides worldwide logistic management and depot maintenance for the F-16 Fighting Falcon -- the world's largest fleet of fighter aircraft. This includes 21 countries employing more than 3,000 F-16 aircraft. The Ogden team reinvented the depot repair system for F-16 avionics. Working with the fighter wings, repair pipelines were cut from 70 to 7 days in-country and 13 days for bases overseas (this includes transportation time). This will save the Air Force \$380 million over 5 years. In 1993, Ogden won the only major interservice fighter aircraft maintenance contract ever when it was selected by the Navy to repair Navy and Marine F/A 18 fighters. Last year, the center performed 2.25 million manhours of maintenance and modifications on more than 300 F-16's, 29 F-4's and 50 C-130's, while beginning interservicing work on 36 Navy F/A-18's.

Nation's Only Repair Source for Silo-Based ICBM's

Ogden Air Logistics Center is the only repair source for our nation's fleet of silo-based ICBM's, including Minuteman II's and III's, and Peacekeepers. The base is an important participant in Strategic Arms Limitation Treaties on an international scale. It recently played a key role in the test firing of a Minuteman III carrying one warhead, a crucial step in ensuring the United States complies with terms of START treaties once they are ratified. Hill AFB's missile directorate has made outstanding strides in cutting costs. In 1993, they improved operations 261 percent returning \$7.8 million to their customers in the form of lower rates and an additional \$3 million in 1994. The group was recognized by Vice President Al Gore as "Heroes of Reinvention" for their accomplishment of making government work better and cost less. This Hammer Award was one of only 79 given across the country.

The World's Best Landing Gear Facility

Ogden Air Logistics Center operates the world's largest overhaul facility for aircraft landing gear, brakes, struts and wheels. This facility handles all Air Force (and 70 percent of the Defense Department's) repair needs and produces 4,600 complete gear assemblies for 27 different weapon systems annually. These vary from the small T-38 Talon nose gear to the massive three-ton C-5 Galaxy main gear. The Landing Gear Facility has 382,000 square feet of dedicated overhaul capabilities enhanced by two miles of fully-automated overhead material handling. It also has the capability to do all of the Defense Department's work of this type in the most cost effective process available. The facility won the 1991 President's award for quality and productivity improvement. Process improvements will save over \$3.65 million in the 1994/1995 Fiscal Year time frame.

ACT IN HASTE — REGRET AT LEISURE.

“Today’s defense debate centers too narrowly on the size of the military budget. The real questions are: What threats do we face? What forces do we need to counter them? How must we change?”

— Candidates Bill Clinton and Al Gore

Mr. President:

In an increasingly volatile world, America's citizens deserve the highest quality national defense. Through their tax dollars, the American people pay for a strong defense capability and should receive it. The question is, will we?

During the 1995 base realignment and closure (BRAC) process, a major decision will be America's depot infrastructure. There is excess depot capacity, but all depots are not equal.

- ★ How will DoD consolidate the work and missions of these facilities?
- ★ How will **you** measure effectiveness and efficiency with certainty?
- ★ How will **you** decide the best solution?

Excess capacity alone is not the appropriate measure.

WHAT IS THE ANSWER?

To satisfy the goal of real savings, DoD must use best business practices without sub-optimizing each service component. Good business practice would dictate consolidation of the workload in the fewest facilities possible, regardless of service branch.

Those facilities that have the greatest capacity to manage diverse workloads should be retained. These are the installations which have the greatest potential for increased throughput — the installations which are large, modern and technologically advanced. These facilities reflect huge investments and a readiness to assume additional capacity, workload and missions. Maintaining their efficiencies and accessing their ability to accommodate increased responsibilities will produce substantial savings.

Mr. President, these installations are America's Air Logistics Centers. Over the years the Air Force has built national assets — proven in efficiency, performance and work ethic — and home to other significant military missions which cannot be easily or effectively moved. Investigative data shows that these installations would be the most costly (and take the longest) to close. According to the model used by the BRAC Commission for Costs and Savings (COBRA), the cost to close ALC's is between \$1- 2 billion each with a breakeven point for savings 100 years in the future! Would this be a good business decision for DoD?

A MULTI-BILLION DOLLAR BUSINESS

The business of rightsizing the United States military involves billions of taxpayer dollars. It's a business in need of a national policy which addresses the total DoD support infrastructure and industrial base.

- ★ We cannot afford interservice rivalry and parochial agendas.
- ★ We cannot simply give work to industry without a clear understanding of the costs, both in dollars and defense readiness.
- ★ We must have a policy which is value-based, using an auditable process open to all.

The right approach rests in maximizing the use of our finest facilities, using competition as a tool when it provides certified savings.

With the resulting infrastructure under military control, the nation will have a solution that works, one that provides responsive support to every military need and the best chance for cost containment and savings in depot consolidation.

This is a critical issue for our country. We're counting on your leadership to ensure the right solution is achieved.

Sincerely,

HILL/DDO '95

UTAH

THE FACTS ARE ON THE SIDE OF HILL AIR FORCE BASE...

"Secretary Aspin... earlier rejected the Air Force recommendation to close McClellan Air Force Base... We put McClellan back on the list for consideration and we added the names of Kelly, Tinker and Robins... We elected to not put Hill Air Force Base on the list because of our concern about Hill's work on ICBM's, operational attributes that accrue from the adjacent Utah Test Range, and continuing uncertainties about the START Treaty... It just did not strike us as logical for the Commission to think about closing Hill, the Air Force's only strategic missile depot."

Jim Courter
Former Chairman
Defense Base Closure and Realignment Commission

Dear Secretary Perry:

The facts are on the side of Hill Air Force Base and the reasons for retaining it are compelling:

- ★ Hill AFB is home to the Ogden Air Logistics Center (ALC), two of the Air Force's premier fighter wings and one of the Defense Department's computer megacenters.
- ★ Ogden ALC is the system program office and only repair source for America's fleet of silo-based ICBM's. In 1993, they improved operations 261 percent returning \$7.8 million to their customers in the form of lower rates and an additional \$3 million in 1994. The group was recognized by Vice President Al Gore as "Heroes of Reinvention" for their accomplishment in making government work better and cost less.
- ★ Ogden ALC provides worldwide logistic management and depot maintenance for the F-16 Fighting Falcon — the world's largest fleet of fighter aircraft. This includes 21 countries employing more than 3,000 F-16 aircraft.
- ★ Ogden ALC operates the world's largest overhaul facility for aircraft landing gear, brakes, struts and wheels — optimized for efficient production. This facility handles all Air Force and 70 percent of the Defense Department's repair needs and has the capability to do ALL of the Defense Department's work of this type. Process improvements will save more than \$3.65 million in the '94/'95 time frame.
- ★ Ogden ALC is the leading provider of rocket motors, small missiles, air munitions and guided bombs. Ninety two percent of all Air Force missile maintenance and 48 percent of all Defense Department missile work is accomplished at Ogden ALC. Ogden has the capacity in existing modern facilities to accomplish ALL DoD in-house depot maintenance on missiles.
- ★ Hill AFB's environmental excellence has won five major awards in the past two years, including the Secretary of Defense's "Environmental Quality Award" for best in the DoD.
- ★ Hill AFB provides support for the Utah Test and Training Range (UTTR), the Defense Department's largest over-land special use airspace. This provides unparalleled training capabilities for the 388th and the 419th Fighter Wings, producing two of the last four overall Gunsmoke champions. The combination of Hill AFB and the UTTR is an irreplaceable national asset.

The Defense Base Closure and Realignment Commission is charged with evaluating military installations on specific criteria. When looking at Hill AFB, they will find one of the largest, most modern and most technologically advanced installations in the country. An installation with:

- ★ significant military value based on missions already in place and the UTTR
- ★ existing capability for development, acquisition and depot maintenance of several types of military systems
- ★ capacity for accepting additional DoD missions with ease
- ★ a record of outstanding workforce performance with demonstrated ability to accommodate new and changing workloads
- ★ specialized equipment, facilities and processes that are costly to move or duplicate

All cost estimates predict that Hill AFB would be the most costly of the ALC's to close. The huge expense of closure, some \$2 billion, would not produce real savings in our lifetime.

Hill AFB has not been a candidate for closure in any of the earlier BRAC rounds. The Air Force is on record (1993) with the determination that Hill AFB is not a base to close. Recently, senior Air Force leaders have stated "nothing has changed." Clearly, they are correct. **NOTHING HAS CHANGED.** Hill AFB is a national asset effectively filling the defense needs of America under any scenario. The facts, the quality and the military value of Hill AFB speak for themselves.

Mr. Secretary, we are confident you will decide similarly — that, by any measure, Hill AFB and Ogden Air Logistics Center should remain open and is a prime candidate for consolidation of other DoD missions.

HILL/DDO '95

UTAH

ROBERT C. OAKS
General, USAF (Retired)
1500 Twisting Tree Lane
McLean, Virginia 22101

17 January 1995

Honorable William J. Perry
Secretary of Defense
The Pentagon
Washington, D.C. 20301-3140

Dear Mr. Secretary:

As a past commander of the US Air Forces in Europe (USAFE) and user of both the operational and depot resources of Hill AFB, I want to make an input as you approach your 1995 recommendations for base closure and realignment. From my perspective of assessing the strategic and military value of Hill AFB, I find the attached quote from Jim Courter still valid. The facts are on the side of Hill AFB and the reasons for retaining it are compelling.

- Hill AFB is home to the Ogden Air Logistics Center (ALC), two of the Air Force's premier fighter wings and one of the Defense Department's computer megacenters.
- Ogden ALC is the system program office and only repair source for America's fleet of silo-based ICBM's. In 1993, this organization improved operations 261 percent returning \$7.8 million to its customers in the form of lower rates and an additional \$3 million in 1994. They were recognized by Vice President Al Gore as "Heroes of Reinvention" for their accomplishment in making government work better and cost less.
- Ogden ALC provides worldwide logistic management and depot maintenance for the F-16 Fighting Falcon -- the world's largest fleet of fighter aircraft. This includes 21 countries employing more than 3,000 F-16 aircraft. These foreign Air Forces depend on the relationship they have built with Ogden ALC and the support they receive. This is not just a U.S. Air Force issue.
- Collocation of F-16 fighter wings with the F-16 depot provides substantial operational advantage and increased readiness. This unique arrangement made the bold step of two level maintenance for F-16 avionics and radar equipment a possibility. Ogden has the fastest repair turnaround program for these spares of any two level support in the Air Force. This is critical to maintaining readiness of USAFE F-16's as intermediate level capability was removed from operational wings.

- Ogden ALC operates the world's largest overhaul facility for aircraft landing gear, brakes, struts and wheels -- optimized for efficient production. This facility handles all Air Force and 70 percent of the Defense Department's repair needs and has the capability to do ALL of the Defense Department's work of this type. Process improvements will save more than \$3.65 million in the '94/'95 time frame.
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Honorable William J. Perry
17 January 1995
Page 3

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Mr. Secretary, I am confident you will decide similarly -- that, by any measure, Hill AFB should remain open and is a prime candidate for consolidation of other DoD missions.

Sincerely,



Robert C. Oaks
General, USAF (Retired)
Commander, USAFE (Jan. 1990 - Aug. 1994)

RCO/ar

Enc. 1

1. Quote by Jim Courter

"Secretary Aspin... earlier rejected the Air Force recommendation to close McClellan Air Force Base... We put McClellan back on the list for consideration and we added the names of Kelly, Tinker and Robins... We elected not to put Hill Air Force Base on the list because of our concern about Hill's work on ICBM's, operational attributes that accrue from the adjacent Utah Test Range, and continuing uncertainties about the START Treaty... It just did not strike us as logical for the Commission to think about closing Hill, the Air Force's only strategic missile depot."

Jim Courter
Former Chairman
Defense Base Closure & Realignment Commission

EXECUTIVE SUMMARY

Introduction. During the 1993 Base Realignment and Closure (BRAC) process, a decision was made to consolidate all tactical missile guidance and control section (GCS) maintenance at one location, reaffirming the recommendation of interservice consolidation in DMRD 908. This decision was based on extensive analysis and lead to the eventual plan to consolidate this workload at the Letterkenny Army Depot, PA (LEAD). We feel the decision to consolidate was a good one. It provides the potential for greater efficiency and reduces costs and down time for vital defense assets. For the 1995 BRAC round, the Office of the Secretary of Defense endorsed an Army recommendation to deviate from the 93 BRAC decision and realign the LEAD consolidation in a three part move. The OSD recommendation retains All-Up-Round (AUR) testing, maintenance and storage at LEAD, and moves the maintenance of the GCSs to Tobyhanna Army Depot, PA (TOAD) and the launchers and vehicles to Anniston Army Depot, AL (ANAD). The Army recommendation reverses the intent of the 1993 BRAC decision by fragmenting rather than consolidating the tactical missile workload.

Hill Air Force Base, Utah, and the Air Force provide a viable alternative to allow complete consolidation of the tactical missile maintenance workload at one location. Hill currently provides depot maintenance for the Air Force, Navy, and Marine Corps Sidewinder and Maverick missile GCSs as well as AUR maintenance for the Maverick. In addition, Hill is the management focal point for the Maverick missile system. Hill AFB provides the capability to go beyond the BRAC 93 decision and accept the consolidated workload from GCS and All-Up-Round maintenance to launcher/vehicle maintenance.

The facilities (modification, repair, test and storage) , personnel skills base, infrastructure, and transportation are available to ensure consolidation at a low cost, within the time frame specified by the 93 BRAC. This consolidation would provide synergism with precision guided munitions, cruise missiles, and ICBM missile workload currently being accomplished at Hill AFB, through sharing of similar technology bases. An overview of the major areas to be considered in workload consolidation are provided in the subsequent paragraphs.

Facilities. The tactical missile GCS maintenance will be centrally located in the missile and aircraft electronic maintenance area. The interconnecting bays allow for rapid movement of components from receipt through delivery. While some equipment relocation and facility repair funds are required, there are no MILCON requirements to complete the consolidation.

Hill AFB has a state of the art facility for AUR testing and maintenance. This facility will provide sufficient space to handle most of the projected AUR workloads. In addition, several large missile integration maintenance facilities are available to overflow workload.

Extensive explosive storage and classified warehouse space is available at Hill AFB and adjacent military facilities to handle consolidation of the tactical missile workload. This will provide immediate access to assets entering the depot maintenance process.

Vehicle and launcher repair will be integrated into the Hill AFB intercontinental ballistic missile erector and transport overhaul and repair facility. With collocated support infrastructure, i.e., paint shop, sand blast, and machine shop, the vehicle repair facility provides processes for rapid repair of some of the largest surface vehicles and erectors in the free world.

Skills. Hill AFB tactical missile GCS personnel retain a high electronics skills base coupled with specific training and expertise in the four major GCS skill areas, Electro-Optical, Infra-Red, Laser, and Radar. Hill AFB is also the single source of repair for the Air Force ICBM workload and combined with the tactical missile workload currently at Hill, accomplishes 70 percent of the overall DoD missile workload. With over 100 tactical missile skilled GCS technicians and 300 strategic missile technicians, training requirements are greatly reduced and rapid ramp up time ensured over personnel with basic electronics experience and little or no GCS specific skills.

Hill AFB has extensive experience in the maintenance and testing of AUR missiles. This provides a core of missile technicians with an intimate understanding of the requirements for system integration between explosive and non-explosive components in tactical missiles.

The ICBM transport erector skilled personnel coupled with the Army trained vehicle mechanics, recently laid off from Toole Army Depot, available in the local skills base provide a strong personnel core to complete the vehicle and launcher maintenance portion of the consolidated workload.

Infrastructure. As a major Air Force maintenance depot, Hill AFB provides the full scope infrastructure to manufacture or repair most any item not immediately available through the supply system or one of the hundreds of manufacturers in the immediate area. In addition, extensive experience with solid rocket motors and the associated skills and facilities provide the capability to test and maintain all types and sizes of motors required to support the tactical missile consolidation. Also, two major rocket motor manufacturers are located within the community, providing an additional source of technical expertise.

Transportation. Hill AFB enjoys the benefit of an active military runway, routinely accommodating C-5 aircraft, immediately adjacent to the munitions storage and staging area. This capability, not available to the present OSD proposal sites, provides immediate, twenty-four hour support for world wide distribution of munitions. Coupled

with an explosive sited railroad spur and immediately adjacent North-South, East-West Interstate system, Hill AFB provides rapid transportation to any desired destination.

Transition Schedule. We recognize the need to ensure the completion of the workload consolidation within the time schedule established by the 93 BRAC decision. The transition plan prepared by Hill AFB personnel demonstrates the consolidation will easily be completed by the end of FY98, well within the desired schedule. The present workload provides the base for the Hill AFB tactical missile transition schedule.

Transition of the workload to other Army depots will require secondary transfer of the workload at LEAD and the initial transfer of the workload from Hill and other depots, thus increasing the overall transfer costs and the associated risk. Due to the commonality of the systems, consolidation at Hill can be completed with minimal risk. The sidewinder equipment presently in place will be used to immediately begin repair of the Navy sidewinder workload, as demonstrated during Desert Storm. The commonality between the Maverick equipment makes the transfer and integration of the Hellfire missile system a very low risk situation.

Cost. Analysis of the current cost requirements for tactical missile consolidation at LEAD and projections made by Hill AFB personnel show that the consolidation could be completed at Hill for much less than projected at LEAD and likely within the remaining LEAD consolidation budget. This is attained by reaping the benefits of an almost \$12 million cost avoidance by not moving the tactical missile system currently located at Hill AFB. Additional savings are gained by taking advantage of more highly skilled personnel currently located at Hill AFB. The ultimate result is consolidation within the original budget proposed by LEAD during the BRAC 93 round.

Workload. The workload has greatly decreased through approval of waivers and changes in the force structure requirements since the 93 BRAC recommendation. This climate makes the consolidation much easier than originally planned and much more critical if the ultimate benefits of consolidation are to be achieved. A table showing the expected workloads transferring under tactical missile consolidation and the associated hours for each systems is located at Attachment 1.

Consolidation of the tactical missile workload remains the most desired option, providing optimum facility utilization, a centralized strong skills base to rapidly respond to changing requirements, and potential for the lowest life cycle cost. Consolidation at Hill AFB will provide the Department of Defense (DoD) with a single source of repair (SOR) with proven capability to accomplish the tactical missile maintenance mission and improves on the purpose of the original decision to consolidate the workload at one location. The Army's recommended plan to disperse the tactical missile workload among three depots leaves Hill AFB as the only viable alternative for complete consolidation.

The Army has proposed moving the GCS repair portion of the tactical missile workload to Tobyhanna Army Depot, separating it from AUR testing and launcher maintenance. There are several disadvantages to this recommendation. First, as noted above, this fragments the tactical missile workload. Second, the entire GCS workload would have to be moved to TOAD (which currently has no missile workloads or experience) where virtually all personnel would have to be trained in specialized tactical missile skills, resulting in higher costs. Finally, TOAD apparently does not have the capability to handle the other two aspects of the tactical missile consolidation; vehicle repair and AUR repair.

The Army recommendation moves the repair of tactical missile launchers and vehicles to Anniston Army Depot. ANAD is probably not an option for complete consolidation, as space for additional electronic repair workload, such as GCS repair, and facilities for AUR maintenance are apparently not available.

The Army has recommended that the remaining portion of the tactical missile maintenance mission, AUR testing and repair, remain at Letterkenny Army Depot. Once again it results in the fragmentation of the tactical missile workload. The Army's recommended plan to disperse the workload leads us to believe they are not confident that consolidation at LEAD is a viable alternative. If consolidation remains the goal, and LEAD is an unacceptable site to accomplish this consolidation, then Hill AFB remains the only viable alternative.

A decision to consolidate the tactical missile workload at Hill AFB allows the consolidation to be completed in less time and with less cost than the option recommended by the Army. The expected costs of moving the workload to Hill AFB are lower than those expected by LEAD, primarily due to the experience base in tactical missile related skills and the reduction in systems requiring movement to a new location. We believe that the cost savings would be of similar magnitude when compared to the plan presented by the Army in the BRAC 95 recommendations. In order to fulfill the Army's recommendation, 100 percent of the GCS workload would have to be moved to TOAD. The only savings would be from leaving AUR maintenance in place at LEAD. Choosing to move the tactical missile workload to Hill AFB would result in savings (of approximately \$12 million) from not moving two major GCS workloads, having a base of specific tactical missile trained personnel, existing vehicle maintenance facilities and skilled personnel, and sufficient adjacent storage to support all aspects of the tactical missile operation.

With the Army's decision to end maintenance operations at LEAD, the only location capable of handling the entire tactical missile consolidation, at reasonable cost, is Hill AFB. A proposal (Attachment 2) was made, in February 1995, by Hill AFB personnel to consolidate, not only the workload scheduled for LEAD, but also all other tactical missile workloads, at Hill AFB. The proposal provides the only viable solution to

facilitate the DMRD 908 recommendation and BRAC 93 decision for consolidation of tactical missile workloads. We recognize consolidation is the best decision for long term tactical missile sustainment in DoD.

*Data Analysis Team
Report to
Joint Cross-Service Group
for Depot Maintenance
January 18, 1995*

Single Site all Aviation Ordnance

- Currently performed at six sites. DM-1 & 2 recommended consolidation by MILDEP

Evaluation

- OO-ALC only "possible" single site
- Ejection seat workload should stay with the aircraft
- MERS/TERS & Guns could be consolidated
 - Certified data not available, Navy estimates 2-3 weeks

Recommendation

- Evaluate single site, exempt ejection seat workload

INTERSERVICING PROPOSAL INTRODUCTION

On behalf of the Ogden Air Logistics Center (OO-ALC) and specifically the Landing Gear Division we are pleased to present the following candidates as areas of consideration for interservicing. Because of similarities with existing Air Force systems, we believe there exists a high degree of feasibility for a smooth and rapid transition to full production on any new workloads transferred to the division.

For more than 40 years, Ogden ALC has been known for providing our customers with world class quality, on-time deliveries, using specially designed facilities, modern specialized equipment, uncompromising process control and strict environmental compliance in our pursuit of excellence. This ensures our customer receive best value remanufactured landing gear, wheels, brakes and related components, and will also ensure the Navy retains its highly reliable landing gear systems.

The labor hours and costs revealed on the following pages are based on average current work load procedure and firm fixed end item sales prices. Actual hours and cost may vary due to condition of assets, repair requirements and availability of repair parts/material.

We trust, that after a thorough review of the proposed areas, one or several will be selected to begin this pioneering effort of joint product and process management. We envision joint management to include Navy personnel being placed in such positions as Deputy, Production Management (GM 13 or MIL 04 or 05), or even Chief of Operations (GM 14 or MIL 05), depending upon the percent of Navy work load. Actual position placement would conform to any existing Memorandum of Agreement. We would also envision Navy Engineering authority, as well as other functional specialists, becoming part of any joint endeavor.

CANDIDATE ITEM

C-130 LANDING GEAR AND COMPONENTS

Capability

The Ogden ALC has the capacity (plant, process, and equipment) in place to produce in excess of thirty five thousand aircraft landing gear, wheels and brakes per year. Due to DOD manpower reductions, however, we are currently producing eighteen thousand finished components per year leaving us with excess capacity. With additional personnel we have the ability to easily double the number of Landing Gear components we produce per year and still maintain a surge capability in the event of a conflict or war.

Current Status

OO-ALC is currently overhauling a total of 184 C-130 Air Force main and nose gear annually. Additionally, we will produce 25 Navy C-130 gear as a result of a proposal submitted to the Navy in 1993. We have the facilities, equipment and fixturing in place that would allow us to expand our overhaul process within months and assume the entire Navy requirement in less time that would be needed to initiate contracts commercially.

As mentioned, we are currently producing a total of 209 C-130 gear. However, with the GAO reversal of our Landing Gear Contract award, this number is reduced to a "warm base" concept of 60 gear for FY96. This unexpected gap creates a prime opportunity to increase the quantity of Navy landing gear overhauled at our facility. Current cost and remanufacture data indicates the following:

C-130 Main Landing Gear:	\$35,975
Repair Cost:	\$ 6,015
Manhours expended:	67.5 per unit
Savings:	\$29,960
C-130 Nose Landing Gear:	\$35,121
Repair Cost:	\$ 2,503

Manhours expended:

36.4 per unit

Savings:

\$27,457

Capacity

There are no facility or equipment capacity concerns at Ogden ALC given additional manpower, we could assume an immediate increase of 149 to 200 gear annually without impacting current customers.

Manpower Estimates

C-130 Gear and Components

*17 Ea Production Personnel

<u>SERIES</u>	<u>GRADE</u>	<u>TITLE</u>
8-WG 8840	9/10	AIRCRAFT PARTS REPAIRER
6-WG 3414	09/10	MACHINIST
3-WG 3711	09	ELECTROPLATER

*Note: Manpower estimates were computed using comparisons to existing Air Force requirements and work specification standards. Air Force standards require a complete remanufacturing of the gear and all components. Without specific work standards, statements of work, and work load volume, it is impossible to compute exact manpower requirements.

CANDIDATE ITEM F-14 INTERSERVICEABILITY, F-15 COMPARISON

Capability

We currently have a F-14 Nose Landing Gear in our facility for a prototype repair. All piece parts have been repaired and we are now awaiting the outer cylinder from the Navy to assemble the gear. There has been no unexpected problems with the repair of this prototype. Ogden ALC has extensive experience with the F-15 which has a similar Nose Landing Gear. We believe the processes and costs of the F-14 Landing Gear will be similar to those we have experienced with the F-15.

Current Status

We are currently producing 72, F-15 Landing Gear annually by trained and certified mechanics. With additional personnel, we could easily integrate the F-14 into our existing repair process with no significant changes or impacts. Significant savings have been realized for repair of the F-15 Landing Gear as the below cost/savings data will attest.

F-15 Main Landing Gear	New Cost:	\$105,802
	Repair cost:	\$ 11,417
	Manhours expended:	83 per unit
	Savings:	\$ 94,385
F-15 Nose Landing Gear	New Cost:	\$ 46,005
	Repair cost:	\$ 9,620
	Manhours expended:	68 per unit
	Savings:	\$ 36,385

Capacity

Capacity is not a problem, we have the facilities and equipment in place. F-14 Landing Gear work load could easily be coordinated and included in our repair system with minor tooling and fixturing for our shops. No significant process changes would be required.

Manpower Estimates

F-14 Gear and Components

*27 Ea Production Personnel

<u>Series</u>	<u>Grade</u>	<u>Title</u>
1-WG 8840	10	SUPV AIRCRAFT MECH PARTS REPAIRER
10-WG 8840	09/10	AIRCRAFT MECHANICAL PARTS REPAIRER
8-WG 3414	09/10	MACHINIST
4-WG 3711	09	ELECTROPLATER
1-WG 3769	08	SHOT PEEN MACHINE OPERATOR
1-GS 0895	09	INDUSTRIAL ENGINEER TECHNICIAN
1-GS 1152	09	PRODUCTION CONTROLLER
1-GS 0830	12	PROCESS ENGINEER

*Note: Manpower estimates were computed using comparisons to existing Air Force requirements and work specification standards. Air Force standards require a complete remanufacturing of the gear and all components. Without specific work standards, statements of work, and work load volume, it is impossible to compute exact manpower requirements.

CANDIDATE ITEM AIRCRAFT WHEELS

Capability

With the proper number of personnel, the Landing Gear Division has the capability and capacity to repair all the aircraft wheels and related components for the Department of Defense. With the use of a computer assisted Mechanized Material Handling System, component parts are efficiently and safely moved from disassembly through the cleaning, inspection, plating and paint areas with a minimum of manual handling. Facility layout and equipment were specifically designed and selected to optimize this process.

Current Status

In FY93, we completed a planned work load of 7,919 wheel assemblies using a total of 77,058 manhours. An additional unplanned work load of 393 wheels totaling 3874 hours was completed at our customers request. Through continued process improvements and efforts driven by competition, we reduced the standard labor hours on wheel overhaul and repair by an average of 26 percent. Repair flow days from induction to shipment average less than ten working days. We are confident that we could apply these same lessons learned to Navy products. A few examples indicate the following:

Noun	New Cost	Repair Cost	Std Hrs
F-15 Wheel Main	\$9,524	\$1,540	8.0
F-15 Wheel Nose	3,138	730	4.7
F-16 Wheel Main	3,400	1,272	5.8
F-16 Wheel Nose	973	400	4.5
C-130 Wheel Main	6,116	950	7.8
C-130 Wheel Nose	2,018	658	5.0

Capacity

Facility capacity is not a concern because the Landing Gear complex was specifically designed to perform repair operating on all landing gear and related components work load. We are currently operating a modified one shift operation, maintaining only process essential personnel on second and third shifts. With additional personnel, we could easily expand to full second and third shift operations and immediately accept Navy wheel work load.

Manpower Estimates

*25 Ea Production Personnel

<u>SERIES</u>	<u>GRADE</u>	<u>TITLE</u>
1-WS 8840	09/10	AIRCRAFT MECHANICAL PARTS REPAIRER
9-WS 8840	09	AIRCRAFT MECHANICAL PARTS REPAIRER
4-WG 3414	09	MACHINIST
7-WG 3711	09	ELECTROPLATER
3-WG 3769	08	SHOT PEEN MACHINE OPERATOR
1-GS 0895	09	INDUSTRIAL ENGINEER TECHNICIAN

*Note: Manpower estimates were computed using comparisons to existing Air Force requirements and work specification standards. Air Force standards require a complete remanufacturing of the gear and all components. Without specific work standards, statements of work, and work load volume, it is impossible to compute exact manpower requirements.

CANDIDATE ITEM AIRCRAFT BRAKES

Capability

With 40 years experience, the Landing Gear Division has the knowledge and capability to repair aircraft brakes and related components for the Department of Defense. A computer assisted Mechanized Material Handling System efficiently and safely moves parts from disassembly through cleaning, inspection, plating and painting areas with minimum manual intervention. The entire Landing Gear facility was designed and equipped to optimize this process.

Current Status

In FY 93 we completed a planned work load of 4,872 brake assemblies using a total of 62,561 hours. An additional unplanned work load of 138 brakes totalling 2258 hours was completed at our customers request. Brake flow days from induction to shipment is an average of 17 days.

Currently the Air Force is using the innovative two for one carbon brake plate program. Two plates that are worn beyond acceptable limits are machined and joined together making a "good as new" plate at a significant savings. This program could be applied to Navy systems where feasible on the F-16. This process saved approximately \$5,000 per brake heatstack. Below are a few examples of our brake costs:

Noun	New Cost	Repair Cost	Std Hrs
F-15 C/D Brake Assy	\$20,830	\$ 3,580	20.4
F-15 C/D Restack Heatstack	8,028	993	5.8
F-15 C/D Two For One Heatstack	8,028	2,500	15.4
F-16 Block 40 Brake Assy	13,925	2,678	19.0

F-16 Two For One Heatstack	7,961	1,150	18.4
C-130 Brake Assy	7,356	2,511	18.7

Capacity

Facility capacity is not a concern because the Landing Gear complex was specifically designed to perform all landing gear and related components work load. We are currently operating a modified one shift operation, maintaining only process essential personnel on second and third shifts. With additional Navy personnel, we could easily expand to full second and third shift operations and immediately accept Navy brake work load.

Manpower Estimates

*28 Production Personnel

<u>SERIES</u>	<u>GRADE</u>	<u>TITLE</u>
1-WS 8840	09/10	SUPV AIRCRAFT MECH PARTS REPAIRER
11-WG 8840	09	AIRCRAFT MECHANICAL PARTS REPAIRER
4-WG 3414	09	MACHINISTS
4-WG 3769	08	SHOT PEEN MACHINE OPERATORS
5-WG 3711	09	ELECTROPLATERS
1-WG 3712	10	HEAT TREATER
1-GS 0895	09	INDUSTRIAL ENGINEER TECHNICIAN
1-GS 1152	09	PRODUCTION CONTROLLER

*Note: Manpower estimates were computed using comparisons to existing Air Force requirements and work specification standards. Air Force standards require a complete remanufacturing of the gear and all components. Without specific work standards, statements of work, and work load volume, it is impossible to compute exact manpower requirements.

CANDIDATE ITEM

JOB SHOP MANUFACTURING AND INVESTMENT CASTING

Capability

The Manufacturing Section of the Landing Gear Division has the capability and capacity to manufacture replacement recoverable and expendable components for Naval Aviation Systems. We have extensive experience in manufacturing aircraft quality pins, bushings, braces, ribs, fittings, hinges, collars, and stiffeners for the systems that we support. In addition, our tool and die area manufactures all of our tooling and fixturing to support our current systems and industrial operations such as electro plating and grinding. They also manufacture our Investment Casting molds which has allowed us to operate the Air Force's first full production investment casting facility.

Current Status

We currently have produced 49 part number components in direct support of the F-18 Navy Contract in Ogden ALC Aircraft Division. The majority of these components were needed immediately to prevent aircraft repair line stoppages, and were manufactured within 30 days after receiving the funded request. Additionally our investment casting facility has 623 hours of Navy work "on the books" at a dollar value of \$41,080. Any manufacturing, short of forgings and within machine capability, could be accomplished within days after receipt of funding.

Manpower Estimates

Current manpower capability (Journeyman Machinists WG-3414/10) exists to support Air Force work load and any additional Navy candidate item. Investment Casting manpower (4 Ea WG-4616/14) may need to be augmented if any of these Navy candidates required a significant increase in casting support.

CANDIDATE ITEM F-18 INTERSERVICEABILITY, F-16 COMPARISON

Capability

Although no direct comparison can be drawn between the unique design of the Navy F-18 and Air Force F-16 Landing Gear, a functional comparison can be made of shock strut components, material and repair processes necessary for refurbishment. The Shock Strut has a similar function on both aircraft. Our extensive knowledge of the F-16 Actuating Cylinder and other similar Air Force systems can be easily transferred to the F-18 Landing Gear with no significant problems. Therefore, a comparison can be drawn between the two weapon systems Landing Gear.

Current Status

We are currently producing 136 F-16 Landing Gear annually by trained and certified mechanics. With additional personnel, Navy F-18 work load could easily be integrated into our repair system. The Air Force has realized significant savings of F-16 repair as indicated below:

F-16 Main Landing Gear	New cost:	\$10,216
	Repair cost:	\$ 2,277
	Manhours expended:	23 per unit
	Savings:	\$ 7,939
F-16 Nose Landing Gear	New cost	\$43,718
	Repair cost	\$ 5,502
	Manhours expended:	22 per unit
	Savings:	\$38,216

Capacity

Capacity is not a problem. Our current systems can accommodate from small T-38 to large C-5 landing gear components. We have the facilities, machines, chemical tanks and technical expertise to take on the F-18 Landing Gear. Tooling and fixtures can be designed and manufactured by our design and manufacture personnel with no significant problems anticipated.

Manpower Estimates

*96 Production and Support Personnel

<u>SERIES</u>	<u>GRADE</u>	<u>TITLE</u>
1-WS-16 OR GM-1601-13		
1-WS 8840	09/10	SUPV AIRCRAFT MECH PARTS REPAIRER
30-WG 8840	09/10	AIRCRAFT MECHANICAL PARTS REPAIRER
1-WS 3414	10	MACHINIST SUPERVISOR
33-WG 3414	09/10	MACHINISTS
1-WG 3707	10	METALLIZING EQUIPMENT OPERATOR
11-WG 3711	09	ELECTROPLATERS
4-WG 3769	08	SHOP PEEN MACHINE OPERATORS
4-WG 4102	08/09	PAINTER
2-WG 0830	12	MECHANICAL ENGINEER
2-GS 0869	12	INDUSTRIAL ENGINEER
2-GS 0895	09	INDUSTRIAL ENGINEER TECHNICIAN
1-GS 1152	09	PRODUCTION CONTROLLER
1-WG 6910	07	MATERIAL EXPEDITER
2-WG 5406	09	UTILITY SYSTEMS OPERATOR

*Note: Manpower estimates were computed using comparisons to existing Air Force requirements and work specification standards. Air Force standards require a complete remanufacturing of the gear and all components. Without specific work standards, statements of work, and work load volume, it is impossible to compute exact manpower requirements.